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CHOLERA AND ITS CURES:

AN
HISTORICAL SKETCH.

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THESE PAGES
ARE MOST RESPECTFULLY INSCRIBED
TO THE
CHAIRMAN AND MAGISTRATES
OF THE
County of Middlesex,
IN TESTIMONY OF
THEIR EARNEST AND DISINTERESTED ZEAL IN THE
CAUSE OF TRUTH,
WHEN, IN 1832,
THE SALINE TREATMENT OF CHOLERA
WAS FIRST PRACTISED, AND ITS VALUE ESTABLISHED, IN THE
PRISON OF COLDBATH-FIELDS.

P R E F A C E .

THE author of a medical work is expected to explain the motives which have induced him to appear before the public. I therefore at once declare, that my sole motive for the publication of the following pages has been a sense of public duty.

Circumstances have brought before my view an immense mass of documents connected with the progress and treatment of Epidemic Cholera. I have closely observed the disease during two outbreaks in this country; and reviewing the results of the treatment employed by a vast majority of practitioners, I have been forced to draw the painful conclusion, that the mortality of Cholera has not been diminished a single *iota* by the means generally employed. Nay more; I fear experience in hundreds of thousands of cases, has not advanced us one step beyond the ignorance of uncivilized nations. The mortality in every part of Europe, and under every variety of medical treatment

commonly employed, has been the same. The inevitable deduction from this simple fact is, that medical science, under its present direction, has exercised no beneficial influence whatever upon the termination of the disease. Nearly the half of those attacked have been cut off in every part of the world. This is a sad conclusion, and holds forth a fearful prospect to the mind.

It is impossible to say what may be the date of another outbreak; or whether its next attack may not be attended with tenfold violence; but an intimate acquaintance with the history of Epidemic Cholera in the United Kingdom enables me to mitigate much of the alarm which would otherwise attend such a statement, and to relieve medical science from the imputation of insufficiency cast on our Profession through want of general success.

To Dr. Stevens we are indebted for a method of treatment by which the mortality from Cholera was reduced to about five *per cent.* of the cases in which that method was employed,—a mortality, be it observed, less than that of typhus fever. Cholera may thus be shorn of its terrors, and subdued within the grasp of science. If the ignorant will submit to be enlightened, and the prejudiced will listen to reason, we may, I trust, look forward to any such visitation without apprehension or dismay. But such is the force of prejudice—so strongly does man's mind cling to preconceived opinions—so difficult is it to see truth through the clouds which misrepresentation or falsehood may have cast around it—that not only the doc-

trines, but the practice of Dr. Stevens, have met with the most determined opposition, and facts, supported by incontrovertible evidence, have been pertinaciously denied, until the public, tossed about in a flood of contradictory opinions, have at last taken refuge in the harbour of incredulity.

The modest and retiring character of Dr. Stevens has, hitherto, induced him to preserve silence under a load of calumny which might well have excited the indignation of any other man.

But the interests of humanity should prevail over all other considerations : and firmly convinced as I am that the saline treatment of Cholera is the only one which experience has proved to be of any avail,—nay, more, that it brings that dreadful disease completely under medical control—I feel it my duty to lay an outline of the case before the Profession, without exaggeration, and as I firmly believe, “ without setting aught down in malice.”

In the chapter devoted to the “ Saline Treatment ” a rapid sketch only of the circumstances connected with Coldbath-fields Prison, and the accusations made against Dr. Stevens, has been given. This part of the subject, with which the character of an upright and honourable man is so intimately connected, would have been followed out more completely, had I not been aware that another person had undertaken the task ; and thus I have but touched lightly on matters which will soon be revealed in the clearest manner. I have withdrawn but a portion of the curtain, yet I trust that what has

been shewn will be sufficient to induce the Profession to suspend their judgment, should it fail to prove on which side lies the truth. For myself, feeling no doubt, I have no hesitation to declare what I know to be an honest opinion.

The Tables, illustrating many important points in the history of the Epidemic Cholera, contain, I believe, some new subjects for thought, and may prove useful.

J. S. B.

7, NOTTINGHAM-PLACE, REGENT'S-PARK,
July, 1850.

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TABLE OF THE METEOROLOGICAL PHENOMENA, DURING THE SECOND OUT-
BREAK, FROM MAY 20TH TO NOVEMBER 10TH, 1849; WITH THE DEATHS
FROM CHOLERA IN EACH WEEK, AND THOSE (MALE AND FEMALE) FROM
ALL CAUSES.—(DAILY.)

CHAPTER I.

Modern history of the disease—Its development and progress in foreign countries.

THE naturalist, while pursuing his studies with toil and patience, is often embarrassed by the disappearance of the phenomenon which engaged his attention; it escapes his further observation, and he finds too certainly that the summer is ended, and his object unattained. Circumstances somewhat similar apply with peculiar force to our investigations into the causes of newly-developed epidemics, or pestilences. They too have their seasons, and these generally are of short duration. Atmospheric influences soon dissipate the terrors of "the pestilence that walketh in darkness;" and the physician must wait for its reappearance, to study the pathology of the disease, and the most effective mode of treatment. But during the interval of the storm—so to speak—during the lull and calm that hush the atmosphere and still the waters, shall we remain inactive and inapprehensive of the recurrence of the same dread visitant? Does the churchyard turf, piled over silent victims, speak no warning voice? Do the ties that have been sundered, and the chasms which have been rent in the bosom of so many private families, teach no lesson? Shall the widow's wail and the orphan's cry be unheeded, while greedy avarice runs her race with wanton competition, expressing no sympathy for the sufferings of humanity? Shall the all-wise Disposer of events send forth a warning to man

in vain, and shall we, amid the triumph of our idle pleasures, disregard the mysterious writing upon the wall? To these, and other such solemn questions, we would fain answer in the negative; for, amidst the gloom which yet, like a pall, overhangs the face of society, there are cheering indications that a more healthful spirit is abroad—a moral and intellectual energy, stimulating inquiring minds to make researches and collect facts, from which the most important inferences may be deduced. But the elements of all such inductions must be comprehensive,—that is to say, not composed of isolated observations, giving one set of facts an undue preponderance over another, and thereby leading us astray. The evidence should be on a sufficiently broad foundation to carry with it conviction, and extinguish false lights. To arrive at such a result, one of the most obvious pre-requisites would appear to be, a faithful historical narrative of facts connected with the late epidemic; not for the purpose of upholding any peculiar or favourite theory of the author, but for supplying data which may guide his contemporaries in threading the same path. Truth is universal, and many *collaborateurs* must conjoin their labours before any great discovery in science can be successfully achieved. To dwell at any length on the interest of such a record, would surely be a work of supererogation; for, without considering a host of secondary causes, which notoriously predispose to, and aggravate the malady, and which affect our social well-being, who among *savans* would allow his scientific knowledge to be cast down, and his efforts in behalf of humanity to be rudely foiled? “Thus far shalt thou go, and no farther!” Canute is reported to have said, addressing the sea-waves, which advanced around him; thereby teaching his courtiers a lesson not less profound in a moral than a philosophical sense. And although it may be, and doubtless is true, that there are heights in the great mystery of creation which finite beings cannot reach, and depths which they cannot explore, still science is progressive; and the human mind is impelled onwards in search of knowledge, as it were, by a divine instinct, which prompts the philosopher to take up his torch, and make his way through the gloom of ignorance, until he reaches the temple of science, in the midst of which he stands unassailable, surrounded by the universally diffused and protecting light of truth.

The inquiry upon which we are now about to enter may be difficult; for although it is certain that the laws of epidemics are as constant and as uniform as any of the other fixed laws of nature, they are, nevertheless, extremely obscure. The subject, however, is one which may well interest the student, who must not limit his views to any one particular town, district, or country; but extend his observations through every latitude of the globe,—

“From Greenland’s icy mountain
To India’s coral strand.”

He must track the footsteps of the invisible enemy from town to town—village to village; along the banks of streams, and across the currents of the wide ocean; he must halt at the mouths of estuaries, and penetrate into the depths of jungles; but let him beware lest, ever and anon, some tempting and fascinating hypothesis rise up, like the *ignis fatuus* in the Walpurgën of Faust, to lead his steps astray. It has been said, that there are more “false facts” than “false theories” in the science of medicine; and certainly, the errors of our predecessors ought to be regarded as beacon-lights for the guidance of their successors. Who can listen without a smile to the causes to which epidemics were anciently ascribed?—the wrath of the gods—the influence of Satanic agency—the appearance of large stars, comets, and the occurrence of earthquakes. We are not disposed to deal contumaciously with the authority of our forefathers. They were observers, and keen observers, of facts; nor has any modern physician recorded his observations with more truthful accuracy than Hippocrates himself.

We shall, however, for our present purpose, confine our attention to the modern history of Cholera, without attempting to trace back its origin into those remote ages in which the identity of its character might be disputed; in attempting which we might disturb from their slumbers Brahminical records, and revel among the legends of Hindooism, in which a somewhat similar malady is said to be described. We might, furthermore, be tempted to discuss with antiquarian zeal whether or not it were this disease which, in the time of Hezekiah, attacked the Assyrian army, and carried off in one night a hundred and fourscore thousand men. But these, albeit curious, are unprofitable matters of speculation, and we therefore content ourselves with describing the history

of this disease during a period which will admit of living evidence being appealed to, in order to establish its identity.

In 1817, the *mort de chien* (or, more properly, according to the Persian, “mardechim”), which had never before spread beyond the confines of India, burst out with extreme violence in Bengal, and, after this period, assumed a new character, extending westward beyond the tropics, within which, if pre-existent, its ravages had previously been confined. Here we may remark, that it has been observed, not only in respect to the course of the Cholera, but of other pestilences, that their progress appears to be, upon the whole, from east to west, or in the reverse direction of the earth’s rotation. Thus it was with the Black Death, in the fourteenth century, which, originating in China, passed westward through Asia, and reaching the coasts of the Levant and Asia Minor, swept over Europe and Northern Africa, having the direction of its course somewhat modified by the physical irregularities of the earth; sometimes turning off from mountain ranges, and lurking along their sides until it found a pass, along which it seemingly pursued its natural way; at other times evincing a predisposition to travel along the course of rivers, or to pursue the tracks of human migration. From the mouths of the Ganges [$78^{\circ} 4'$], and as far as the Jumna [70°], the epidemic Cholera took three different routes; south-west, south-east, and westward. By the first, it reached Madras [$82^{\circ} 2'$]; then Ceylon, and thence perhaps by ship to the Mauritius; by the second, it visited successively Arracan, the Malay Peninsula, Penang, through Sumatra, Java, and the Spice Islands, to Timor: thence spreading northward by the Phillipine Islands; and, lastly, still taking a northerly direction, in 1820 it reached Canton [$70^{\circ} 9'$], Pekin [$52^{\circ} 8'$] in 1821, and spread through Mongolia.

With more rapidity than either of the foregoing courses, the westerly stream of pestilence reached the British army on the banks of the Scinde; and in 1818 arrived at Delphi, giving off tributaries to Serhampore and Kotah, and proceeding northward until it received a check at the Himalaya [70°], and thence driving southward to Bombay, having its southern limit at Cape Comorin. In the summer of 1821 it broke out with deadly violence at Muscat, Bashehr [77°], and Bassorah; and from thence took its course to Bagdad. Here it subsided; but as the

next summer advanced, it made its way gradually towards Europe; and in 1823, although with much less violence, it spread westward to Antioch and other ports of the Mediterranean, and extended northward to Astrachan. The pestilence then paused on the western extremities of Europe during six years. An intelligent correspondent in the *Times* here remarks that, "No quarantine was enforced, no obstacle was opposed to the streams of human intercourse flowing westward from the infected places. The plague seemed to be exhausted, and the alarm which its proximity had excited soon ceased and was forgotten. In the summer of 1829 it broke out at Orenberg [$35^{\circ} 2'$], on the Tartar frontier. In Orenberg and the surrounding provinces a tenth of the population was seized, and about a fourth of those attacked died." This second warning renewed for a moment the forgotten fears of Europeans; but no measures were taken to resist the impending pestilence. With the subsidence of the disease during the winter, the apathy of Europe returned. No steps were taken to abate the filth and misery of over-crowded towns. The authorities permitted the grave-yards—the slaughter-houses—the reeking cess-pools, emitting putrid steam and mephitic air, still to poison the atmosphere; while the squalid population—predisposed by their blood being impoverished and fevered to be attacked—were suffered to expose themselves during their daily labours to the epidemic like victims condemned to perish in the lion's path.

In the summer of 1830 the disease again broke out in Persia. Still true to the usual course which it observes, it spread westward along the Valley of the Kur to Tiflis, and thence into Caucasia. From Asachan it ascended the Volga to Saratoff, and from the latter to Moscow. A *cordon sanitaire* was now thrown round that city, and a strict quarantine observed. Still the disease spread, until in six weeks as many as 3000 persons perished. It continued to ascend towards the north-west, spreading from the Caspian to the Baltic, and also down the river Don to the borders of the Black Sea, reaching Odessa and the mouth of the Danube almost contemporaneously with its outbreak in Moscow. It next spread along the Valley of the Danube to Vienna; by the Baltic it made its way from Petersburg to Berlin, while another stream reached Warsaw and Cracow. By these several routes it traversed mountains and plains, roads and rivers, throughout Austria, Hungary,

and Germany, and eventually reached Hamburg in the autumn of 1831. From the latter it was conveyed, as some believe, by an infected vessel to Sunderland, where it broke out on the 26th of October, the same year. France, together with the Spanish and Italian peninsulas, had as yet escaped untouched. From Sunderland its transit was easy to the shipping in the Thames, and London had now fully imbibed the infection. In February, 1832, Edinburgh was visited, and Dublin shortly afterwards. Calais and Paris were affected at the same time in March. From these places it spread throughout France; where the pestilence was more virulent than in England; Paris alone numbering 18,000 victims. In June it reached Quebec and New York, whence it visited the entire American continent.

Another current now took a north-easterly direction from England, and attacked Lisbon and Madrid in 1833; from whence it spread, in 1834, throughout the peninsula, and, defying Alpine ranges, penetrated to Piedmont, Genoa, and Florence in 1835. From Marseilles and Toulon, which had not been visited until 1835, the disease was carried to Algiers in 1837, and then took its course along the northern coast of Africa. In the same year, out of a population of 103,000, Malta in twelve weeks lost nearly 4000 souls.

After lingering for two or three years in each country after the date of its arrival, the Cholera subsided in Europe. In India, however, it again became endemic, raging yearly for a period of several months, and exciting the greatest alarm lest it should burst its bounds, and again overshadow the whole earth. Nevertheless, nothing was done to provide against a second invasion, or to meet it upon its recurrence. It was abundantly proved that the Cholera, like Typhus, was prone to attack persons debilitated by over-work, insufficient diet, damp, crowded, ill-ventilated apartments. Everywhere the squalid abodes of the poor had been the chief seat of the disease, and their miserable inmates its most certain victims. Notwithstanding which, the filth of London was permitted to accumulate and ferment in its 300,000 cesspools; the foul tidal ditches of Bermondsey, Shoreditch, and Lambeth still continued polluting the surrounding atmosphere. Nor is this all; for every year some 40,000 more corpses had already been added to the soddened mass of putrescence upon which the metropolis stands.

Much that is true of London is also true of Moscow, Petersburg, Berlin, Vienna, and Paris; as well as of Lisbon, Madrid, and Rome. Everywhere apathy and indifference have followed the subsidence of the panic. Of this apathy and indolence Europe is at present suffering the consequences. The pestilence now raging has pursued with little deviation the track of its predecessors,—travelling, however, more rapidly, and committing more fearful ravages than before. Many cities—*e. g.*, Petersburg and Berlin—were in 1847 attacked not only in the same season, but in the same month, as in 1830. The same streets—nay, the very same houses that suffered most severely before, are suffering the most severely now; and towns which, like Birmingham, escaped in 1830, are enjoying a similar immunity.

To pursue, however, the course which it observed abroad. It was obviously consistent with the previous history of Cholera, that as soon as it disappeared in one country it should be expected to break out, perhaps with increased severity, in another. For some time it had been desolating the Russian territories, when, by a steamer which left Cronstadt on the 17th of July, the gratifying intelligence was announced that the disease had subsided and was apparently over in St. Petersburg. In that city its ravages had been extremely disastrous—in seventeen days the number of deaths amounted to 7452. While the inhabitants of St. Petersburg congratulated themselves upon the disappearance of so calamitous a visitation, intelligence was brought that the disease had suddenly appeared, on the 22nd of July, with increased intensity at Cairo, and also at Tantat, a town on the Damietta branch of the Nile. Another letter from Tarnapolis announced that the Cholera had broken out fiercely at Okassa, a Russian town, thirty leagues distant from Tarnapolis, whence it spread with inconceivable rapidity over the entire western frontier of Galicia. At the same time the plague was not only reported to be raging malignantly at Stockholm, but to have penetrated into the interior of the country!—into Finland and Lapland. Letters from Chesme were the same month received, stating that the disease had there disappeared. At Bucharest it was also on the decline, but throughout the surrounding country its ravages continued.

At Jassy it was still making great havoc, from fifteen to two

hundred falling victims daily, although two-thirds of the population had, in their alarm, quitted the city. From the *Gazette d'Augsburg* we learn that at this period several cases had been observed at Vienna, although only in a sporadic form. From Abo, in the grand duchy of Finland, reports were received, stating that the disease had there re-appeared (August, 1848), with increased severity. But the calamity now appeared to be spreading in every direction; forty governments of Russia were visited by it; and between the 26th of July and the 2nd of August, the deaths amounted to 546; while in Moscow, on the 26th of July, there were 1906 cases of Cholera under treatment.

The progress of this fatal malady, as it devastated foreign countries before its approach to our shores, was duly notified to our Government by official letters and despatches, from which we may make the following extracts:—

D. P. Leonardi, of the Quarantine of Ancona, in a letter dated June 26, 1848, observes: “During the last week the Cholera has manifested itself in this city. The cases have averaged from four to five daily. The mortality here has not been great, but I regret to say that at Balgat, a village distant one hour to the west, nearly the whole population has perished.”

Another despatch from the same gentleman, dated Jassy, June 26th, states as follows: “Since my preceding despatch of the 19th instant, consular No. 11, I have the honour to report that the prevailing epidemic, the Cholera, has assumed a very violent character in Jassy, and that the number of casualties has varied from thirty to one hundred deaths per diem. The Government has not judged it advisable to issue any bulletins on the occasion. The malady offers quite a novel character. It has been so rapidly destructive, that persons in perfect health have fallen victims to it in the short space of two or three hours, and the instances are numerous. It may be attributed, undoubtedly, to the excessive heat of the season. The thermometer for successive weeks has seldom marked less than 29° to 30° by Reaumur, or 100° by Fahrenheit, in the shade. At Galatz the malady has almost ceased; at Ibraila and Bucharest it has diminished; and the abundant rain now falling will refreshen the atmosphere, and relieve us from one of the chief causes of disease. In the meantime the city has been abandoned by all the families who have the

means of quitting it, and my own chancery is deserted. All the tribunals are closed, as well as the schools, and vigorous measures are employed at the barriers, or tolls, of the city, to prevent the egress of whatever may propagate the malady, and regulations, prohibiting the introduction of various supplies, are also enforced. Provisions are becoming scarce and dear.

“To add to this gloomy picture, immense swarms of locusts have appeared in every direction, and in a tenfold amount to those of last year.”

From Odessa, June 28, 1847, Mr. Yeames addressed a letter to Lord Palmerston, in which he informs the Government that the “presence of the Cholera in this town was for the first time acknowledged by public authority yesterday. According to official report there were on that day—new cases, 133; deaths, 44; recoveries, 23. And from the 19th of May to the present day, in town and in the port—total number of cases, 824; of deaths, 332; of recoveries, 235; remaining sick, 257. The present population of Odessa is stated to exceed 90,000 inhabitants. I am not yet prepared to speak on the modes of treatment adopted here, which, in the hands of professional men, varies very materially under different circumstances. All condemn neglect of first symptoms, however trifling, recommending instant and energetic remedies; and the simplest means thus applied, in numerous cases, have proved successful: such as large doses of the essence of peppermint, even brandy with pepper or ginger, and, in particular, violent friction. The Cholera is reported to be very severe in Nicolayeff and Cherson, and in parts of Bessarabia. It is spreading throughout the country, and is advancing rapidly westward. It has likewise re-appeared in the towns on the Azoff, though in a very slight degree.”

The next document to which we request attention is a letter from Mr. Sandison, our Consul at Tchekeerghi, near Broussa, addressed also to Lord Palmerston:—“I lament to have to perform the duty of announcing to your lordship a fearful visitation of the Cholera in this district. It manifested itself in the town about eight days ago, and the number of attacks has increased to sixty or seventy a day. In most cases they have not been fatal where prompt medical assistance was obtained. In the immediate vicinity of the Consulate the malady broke out, and

continues to rage with intense violence—not a house has escaped. It has swept off two of my domestics, a third recovered from an attack, and one of my daughters fell a victim to the scourge a few hours after our arrival at this village, where the hot mineral springs are situated, which escaped the former visitation in 1831, and hitherto is exempt for the present. It is spread over many of the villages near, and a great part of the district, extending also to Balahissar, and the valley of the Sangarius, from such imperfect information as I can yet obtain.”

From Belgrade, Mr. Fonblanque wrote word, June 30,—“ In a letter from Alexinai, Captain Cecil Johnson says: ‘ There is nothing new here, except that on the 18th, a swarm of caterpillars, such as no man ever saw before, took possession of this valley, and by sunset had destroyed every plant. Such was the number of these insects that the people were turned out at four o’clock in the morning to destroy them with besoms, branches of trees, &c. The roads were literally black with them, and the house in which I live was covered to the first floor. The heat is overpowering, a breeze blowing like the hot winds of India. A Tatur from Stamboul reports that the Cholera was raging in that city! Nearly similar phenomena to these mentioned were observed at different places in 1831 and 1835, and are assumed to have some occult connection with Cholera. It is certainly a singular coincidence that (besides Alexinai) most of the valleys on the south-eastern frontier of Servia, and the west of Bulgaria, should have been covered with caterpillars (of a peculiar kind, as the peasants allege) just as the Cholera was advancing to within a few leagues of those districts; but then it should also be considered that the same unusual heat, which adds intensity and impulse to the disease, may also account for the extraordinary development of insect life.’ ”

Sir Stratford Canning wrote from Therapia, July 1st, to Lord Palmerston, on the same subject, as follows:—“ The strength of the disease appears to fluctuate in some degree with the wind, being on the increase whenever a south or south-east wind prevails.

“ The accounts from Broussa, Odessa, and Bucharest, not to mention other places of less note, are very alarming.”

A despatch from Mr. Consul Gardner, dated Jassy, July 16, 1848, stated:—“ The Cholera is diminishing at Jassy, but raging

with violence in the country. My letters from the district represent its effects as most destructive."

From Cairo, Mr. Murray, July 18th, wrote :—" I regret extremely to inform your Lordship that the Asiatic Cholera has suddenly appeared here in a form of unusual malignity. Whence or how it came I am at present unable to state, as no case has been reported from any of the ports or frontiers of Egypt. Hitherto its ravages have been chiefly confined to Boulak, the port of this city, on the Nile. On the night of the 15th instant, five cases occurred in that suburb ; on the 16th, eighteen ; yesterday and last night, forty-nine cases. What is most melancholy, and also most extraordinary, is, that although the sufferers have had all possible medical aid from practitioners who have had great experience in the treatment of Cholera, not one case has hitherto been saved ; every single patient has died in the course of a few hours. The Board of Health have assembled, and have issued a series of precautionary regulations, with a view to limit the ravages of this fearful scourge ; but it is vain to hope that, having begun with such force and intensity, its progress can now be arrested by any human effort. The will of Providence may, indeed, cause it to disappear as suddenly as it appeared ; but until some cases of successful treatment shall have been reported, it will be difficult for the public mind to be much tranquillized by the suggestions of the faculty."

In the House of Commons, on Monday, Aug. 7th, Lord Morpeth read from a return the casualties from Cholera at St. Petersburg, to July 24th, giving the following results : Cases, 17,742 ; deaths, 10,138 ; cures, 4,618 ; under treatment, 1,986.—Proportions per 100 : deaths, 57 ; cures, 26 ; under treatment, 17. At Moscow the cases were, 9,754 ; deaths, 4,309. The accounts from Odessa (he said) were almost as afflicting.

In Russia very full and judicious instructions were addressed to the public, with the view of suggesting means for counteracting the extension and fatality of the disease :

" It has been remarked, that just before the appearance of the Cholera in a district, the inhabitants are troubled more than usually by diarrhœa and other complaints, trifling under ordinary circumstances, but which, in the presence of the epidemic, are apt, if neglected, to degenerate into real Cholera cases.

" It is well known from the experience obtained in 1830 and

1831, that the Cholera is in itself generally not contagious, but that it may become so, like some other diseases, if many sick are kept crowded together.

“The Cholera has been found to be most destructive in villages situated on low and marshy grounds, or near bogs and stagnant pools, and particularly where the inhabitants are confined within narrow space, and live unmindful of cleanliness.

“It has been further observed that those dejected in spirits, and easily alarmed, are more subject to Cholera than those who live in confidence, and are of good courage.

“The preceding remarks having been made, the following are the precautions recommended for observance against Cholera:—To beware of catching cold, and particularly to protect the stomach from cold, for which purpose to wear a broad belt of cloth, or stout flannel, upon the skin around the waist; not to lie upon the bare ground, nor to sleep at night in the open air. After sleep or hard labour, when in perspiration, to drink no water or other beverage cold; to drink no acid beverage, and never much at a draught; to beware of all things of intoxication; to use light food and moderately; to eat no bread insufficiently baked, no crude vegetables, no unripe fruits, nor meat or fish not perfectly fresh, and to abstain from salted meats and pickled fish that provoke thirst; to keep the person and the dwelling clean, and to allow of no sinks close to the house, to admit no poultry nor animals within the house, and to keep it airy by ventilation. Where there are sick, let not the place be crowded.

“Notwithstanding the best precautions, the Cholera may at times break out. The following are its symptoms, and the treatment to be pursued with perseverance and confidence:—

“A person in good health may be suddenly attacked by Cholera; at first sickness, the eye-sight dimmed, then, after a shiver and rumbling in the bowels, vomiting and purging, with acute pains below the breast, under the ribs, and on the left-side, attended by quenchless thirst. If the patient be not quickly succoured, cramps ensue in the legs and arms, which become of icy coldness; extreme weakness comes on, and a deadly paleness,—the whole body becomes cold, then a hiccough, and other signs of approaching death.

“On the appearance of the first symptoms let medical aid be

immediately called ; but if that cannot be obtained, the treatment necessary is as follows :—

“1. Let the patient be warmly covered.

“2. Let his whole body be well rubbed with warm vinegar or brandy ; likewise his hands and feet and pit of the stomach with clear tar, or, if none can be had, with strong brandy.

“3. Let the patient take, in frequent and small quantities, a warm and light infusion of mint, or of the essence of mint, one or two drops at a time, with sugar.

“4. If there be no abatement of pain or vomiting, a blister of mustard should be applied to the pit of the stomach.

“5. If all the same symptoms still continue, and the patient be of a strong constitution, then apply leeches to the same place, twelve to twenty for an adult, and for children six to ten ; but, if of a weak constitution, let no leeches be used without the advice of a physician.

“6. A warm bath, if ready and near, may be used with benefit ; otherwise a vapour-bath may be prepared at home thus :—heat some stones or bricks, and over them place a bedstead with a netted bottom, upon which let the patient be stretched, well covered ; then throw the vinegar upon the hot stones, whence steam will arise conducive to perspiration, aided by the frictions, which must not be discontinued. For want of this vapour-bath, place around and in contact with the patient, bags of heated sand or ashes.

“Observations.—During the present epidemic no applications have been found so efficacious as strong friction, either with the naked hand, with a cloth, or with a brush, using clear tar, or some other irritant. The essence of peppermint may be used more freely than heretofore prescribed.

“Great care must be observed during convalescence, for the Cholera is but too often followed by typhus fever.”

The last accounts received from abroad which we shall cite respecting the foreign progress of the disease are as follows :—

Malta, August 1, 1848.—“The rapid approach of Cholera to our island has again compelled the authorities of the Health Office to pay attention to the safety of the island. Quarantine has been established.”

Egypt.—Letters from Alexandria, of the 22nd ult., announce

that Cholera had manifested itself intensely at Cairo, and had also reached Tantah, a town on the Damietta branch of the Nile. Alexandria had hitherto been spared, and, as the malady was brought by pilgrims from Constantinople, several of whom were visited with it in the lazaretto of Alexandria, the correspondent infers from its not meeting there with the atmospheric condition necessary for its development, that the city had nothing to apprehend from its effects. Ibrahim Pacha immediately gave orders to suspend all laborious works, and to supply the men engaged in them with wholesome food. The public establishments in Cairo were placed in quarantine.

Berlin, Aug. 2.—A case of Cholera reported in the Charité Hospital yesterday has not excited any alarm, as it was of the kind usually exhibiting itself in individual instances at this time of the year. There is no intelligence of the disease having appeared at any point between this city and St. Petersburg.

It was to be expected, that contemporaneously with the appearance of the disease on the Continent, the subject of quarantine and *cordons sanitaires* should be broached. A report, however, had been presented to Parliament, in which the Commissioners, after studying the history and peculiarities of the disease and partially discarding the idea of its communicability from person to person, suggested that quarantine should not be enforced. The following Order in Council will show how far this recommendation was adopted by the authorities, at the same time that it is an index to the anticipations predominant at the time at head-quarters :

“ A communication has been received by the Commissioners of the Customs’ Department, through their secretary, from Mr. Greville, one of the clerks of the Council, stating that with reference to his communication, dated the 15th of June last, directing all vessels arriving in the United Kingdom, having foul bills of health (with reference to Cholera), to be released from quarantine without any medical visit, providing no case of Cholera had existed on board any such vessel for a period of ten days previously to her arrival, he (Mr. Bathurst) has been directed by the Lords of the Council to state, for the information of the Commissioners of the Customs, that it is the express desire of their Lordships that the before-mentioned regulation should still continue in force. Mr. Bathurst had also to state that he was now further directed by the Lords of the Council to inform the Commissioners that their Lordships are of opinion that instructions should be forthwith transmitted to the different ports in the United Kingdom, directing that, in the event of the

arrival of any vessel on board of which a case of Cholera shall have occurred, such vessel shall be detained under the restraint of the quarantine until the clothing and bedding of the following persons shall have been thoroughly immersed in water, under the direction of an officer of the Customs—viz.:

1. Of all persons who shall have died of Cholera on board of such vessel at any foreign port, or on shore at such port. 2. Of all persons who shall have died, or who shall have had an attack of Cholera, on board of such vessel during her homeward voyage; and that, should any vessel arrive with Cholera actually on board, such vessel shall be detained under quarantine at her port of arrival until further orders from the Lords of the Council are received. In pursuance of this communication from the Lords of the Council, with a view to prevent the introduction of Cholera into this country by vessels arriving from abroad, express directions have been forwarded by the Commissioners to the officers of the Customs' Department at the several ports and places throughout the United Kingdom, as well as to the port of London, to take care that their Lordships' orders be duly obeyed."

The policy or impolicy, the expediency or in expediency, of having recourse to the laws of quarantine when there would appear to be an epidemic crisis prevailing in separate and distant parts, not only of Europe, but in different parts of the world, we shall not here discuss; we shall simply record the history of this last visitation of the disease, and the measures which were at the eleventh hour recommended and prescribed by the Government and local authorities, to check its progress and mitigate its intensity, in the hope of deriving a moral lesson from such details, which will teach us to adopt such sanitary measures as will meliorate the moral and physical condition of the poor; and enable us to avail ourselves of such resources as may, under the blessing of Divine Providence, be placed within our reach to avert or mitigate the terrors of the pestilence which spreads sorrow and desolation throughout the land.

CHAPTER II.

The origin, nature, and causes of Cholera.

HAVING thus far traced the history of the Cholera, during its late visitations abroad and at home, and referred to the sanitary measures which were so stringently called for to check its fatal progress through the heart of our densely-populated metropolis, we now proceed to consider the opinions which have been entertained respecting the origin, nature, and causes of the disease: a course which appears to us more consistent with the duties of the historian than hazarding speculations of our own, which would only add to the many theories which already throw a fascinating and, we are afraid, fallacious light upon the path of medical practice.

The derivation of the term Cholera was by Celsus referred to the words—Χολη *vilis*, and *ρεω fluo*—Χολερα, a bilious flux: the ancient physicians referring almost every disease to the flux, or reflux, or stagnation of the bile. Trallian and others assigned its origin to Χολας, an intestine, with the same verb—implying thereby a bowel flux. The term, however, has been referred to a much earlier eastern source, and derived from two Hebrew words, חֲלִי, signifying *choli*, sickness, and רָע, bitter, bad, or evil. Be this as it may; the derivation of the word is less interesting to discuss than the early history and treatment of the disease.

Hippocrates, in his “Epidemics,” relates very well-detailed cases of Cholera; and Paulus Œgineta gives a summary of the treatment which the Greek physicians conceived to be most successful. In one case described by Hippocrates, the disease was

occasioned, he affirms, by unwholesome food; such as pork improperly boiled, pot herbs, summer fruits, &c. In another the patient drank hellebore in the juice of lentils, and vomited; he became cold and was put into the hot hip-bath, where he regained his strength and recovered.* Aretæus defines Cholera to be a retrograde movement of the matters in the body upon the stomach and intestines, consisting of a discharge upwards and downwards of bile, which, if the disease proves fatal, becomes black; and at the same time the extremities are cold, with profuse sweats; pulse small and dense, constant straining to vomit and tenesmus. He also makes mention, among the symptoms of spasms and contractions of the muscles in the legs and arms, of borborygmi, tormina, and syncope. The complaint, he says, is occasioned by continued indigestion, and proves fatal by superinducing convulsions, suffocation, and retchings. With regard to the treatment, he cautions us not to stop the discharge at first, but to encourage it by giving frequently some tepid water; and when attended by tormina and coldness of the feet, to apply to the belly hot oil, and rub the legs to restore heat.†

Oribasius, Actuarius, and Nonnus treat of the disease nearly in the same terms; and Cælius Aurelianus gives a very complete history of its symptoms. The bile which is vomited, he says, is at first yellow, afterwards green, and at last black. His treatment is very similar to that of Aretæus, viz., tepid water at the commencement of the disease to facilitate vomiting, sponges out of cold water applied over the stomach, or else cupping instruments with peat; aromatics, bread soaked in wine, and the like. He condemns Hippocrates for sanctioning the giving of hellebore; and blames Diocles for recommending southernwood, which he remarks is a very harsh medicine; and also for allowing milk, which he says is apt to grow acid. Cassius Medicus accounts for the coldness of the extremities and contractions thereof upon the supposition that they are occasioned by the vital spirits having left them, and been determined to the stomach.

The disease among the Arabian physicians was also well known. Haly remarks that it consisted of a discharge of bile, and incul-

* The medical profession is greatly indebted to the Sydenham Society, for having published the collected writings of Hippocrates, Paulus Œgineta, &c., translated by the learned Dr. Adams, of Aberdeen. Hippocrates, vol. i., p. 310—329.

† Paulus Œgineta, vol. i., p. 515.

cates as a settled principle of treatment, that when the strength continues good, and the discharge not immoderate, the vomiting is to be encouraged by giving tepid water, with oil of sweet almonds mixed. When there is great prostration of strength, he directs us to sprinkle water on the patient's face, to apply ligatures to his limbs, and to rub his feet and legs with a calefaciant oil. When the discharge cannot be got otherwise stopped, he advises us to apply a cupping instrument over the stomach. Alsaharavias, like the others, directs us to promote the vomiting at first by giving tepid water. Among his other remedies, he recommends an infusion of aloes and wormwood. Rhases recommends draughts of tepid water, the application of snow over the stomach, ligatures to the extremities, wine, and astringents. Avicenna, and most of the authorities, direct us to encourage sleep. Avicenna's plan of treatment is exactly the same as that of Rhases.*

Celsus, to whom we have above referred, adds to the title of his chapter, "De Intestinorum Morbis," emphatically, "*et primo de Cholera*," because, he states, "it appears to be a disease common to the stomach and intestines." At the same time, he observes, "there is both purging and vomiting; besides which flatus, and tormina, and bile is ejected both upwards and downwards. The legs and hands are seized with involuntary contractions, and the patient is attacked with violent thirst and syncope; from such a combination of causes," he adds, "we must not be surprised if the patient die suddenly."† He then directs that vomiting should be encouraged; warm applications applied externally to the epigastrium; and if the patient be harassed by retching, stimulants are to be given. Should the patient be weak and the legs affected with spasm, wormwood is to be administered at intervals; and if the extremities of the body become cold, they are to be anointed and rubbed with hot oil, to which a little wax may be added. The account which the ancients have thus given of all the characteristic features of the disease,—incessant vomiting, purging, muscular contractions and spasms, extreme prostration and collapse,—clearly indicate the symptoms which still identify the disease, and hence some of our modern writers have reasonably argued that its popular classification into English, Bilious, and Asiatic

* Paulus Ægineta, x., vol. i., Book iii., sect. 39, p. 517.

† "Celsus De Medicinâ," lib. iv., chap. xi.

or Malignant Cholera, only, in reality, implies the different degrees of intensity assumed by the same malady. "If we go beyond this," observes an intelligent observer, "we are inferring a difference unfounded in fact, unsupported by observation and legitimate deduction, and of injurious practical tendency."*

Nevertheless many of our modern physicians have, in considering the nature of the disease, doubted the propriety of the term Cholera being applied to it. Dr. James Keir, Knt., in his Treatise on Cholera, contends that the name is but ill-suited to express the nature of the epidemic; and he argues, "that it ought to have its place in a system of Nosology, rather under the Comata or Adynamia than the Spasmi," and regarding it as a species of Apoplexy, or Asphyxia, he proposes to designate it "*Asphyxia Mephitica, alvi fluxus epidemica*." Dr. John Wilson observes, that "although the term Cholera when applied to the disease under notice is derivatively erroneous, it has been so long adopted, and universally employed, that it would be vain, and perhaps useless, to attempt to alter it; but the adjective appellatives coupled with it are so numerous and inappropriate, so confusing, and so likely to lead to unjust conclusions, that it is desirable to substitute for them a single significant epithet;" and as a total want of bile in the fluid discharged from the stomach is one of the most striking and unequivocal characteristics of the disease, he would give to it the two forms of the disease, *Cholera Abiliosa*, and *Cholera Biliosa*.†

In Dunglison's "Medical Lexicon," we have the synonyms as follows:—Cholera—Cholera Morbus—Cholera nostras—Cholera vulgaris—Sporadic Cholera—Cholerrhagia—Passio Cholericæ—Felliflua passio—Morbus Fellifluus—Holera—Bilis fluxio, F. Cholera, Morbus Sporadique—Ch. Européen—Trousse-galant. The higher degrees have been called Centro-gangliitis and Myclogangliitis. In India we have Spasmodic Cholera—Asiatic Cholera—Malignant Cholera—Indian Cholera—Epidemic Cholera—Pestilential Cholera—Asphyxia pestilenta—Choleric pestilence—Eastern Cholera—Cholera Indica—Cholera Epidemica—Typhus Bengalensis—Cholero Typhus—Ganglionitis Peripherica et Medullaris—Hymeno-gangliitis—Panto-gangliitis—Cholerrhœa Lymphatica—Psorenteria—Typhoid fever of India—Cholera Asphyxia

* *Vide Cyclopædia of Practical Medicine, art. Cholera.*

† Treatment of Cholera in the Royal Hospital, Haslar.

—Hyperanthrax—Enteropyra Asiatica—Trisplanchnia—Trisplanchnitis—Hæmataporrhosis—Hæmatorrhosis—Morbus Oryzeus—Malignant Cholera—Convulsive Nervous Cholera—Rice Disease—[because supposed by Tytler to be caused by damaged Rice]—Fr., Mort de Chien.

Among the various causes which have been suggested as giving rise to the disease, some are curious, some absurd—and many, to say the least, are highly ingenious. A *savant* in Paris maintained that Cholera was caused by a peculiar acid pervading the air; to correct which, as acid could have no greater enemy or corrector than Ammonia, he recommended that the heights surrounding Paris should be covered with batteries, and the cannons loaded with powder and balls of caoutchouc, filled with ammoniacal gas, which would thus be diffused through the atmosphere.

It is stated by Dr. Chambers, that “the air in every country that has been scourged by the disease, has been unusually charged with electricity, as has been evinced by the extraordinary occurrence of thunder storms and hurricanes at unusual seasons, and of frequent and severe earthquakes in the countries where such phenomena are common.” Mr. Orton remarks, that “the air most favourable to the production of Cholera is in a highly rarefied state, and with respect to its electricity is negative; a phenomenon which in ordinary times is a sure prognostic of storms.* Mr. Ambrose Blacklock, of the Madras Medical Establishment, in a pamphlet on Cholera, observes, “there is abundance of electricity in the air, but it is not free electricity, and cannot therefore act as a healthy stimulant to the respiratory surface, nor excite the spinal respiratory bodies.” M. Andrance, in a letter to the President of the French Academy, alleges that not only Cholera, but perhaps all the epidemics which from time to time afflict humanity, are caused by the decrease of electricity. In the “Elements of Galvanism,” by Mr. Wilkinson, it is held that the electrical state of the atmosphere exercises a powerful influence on the human body, and he maintains that the deficiency of the electrical fluid produces that remarkable relaxation of strength, which causes the general debility of the human functions in those countries where the Sirocco prevails. Dr. Seth B. Watson contends, that the Cholera takes its rise from a malignant fluid existing in the atmosphere, and that

* “Essay on the Epidemic Cholera of India.”

therefore the disease has not the property of being transferred from one person to another by contact alone, and he proceeds to show four different ways in which the fluid may be received into the body; viz., by the skin, lungs, alimentary canal [taken in with the food], or through the tissues by disruption of their continuity.* Dr. Alexander Knox, after enumerating the various opinions put forth, thus sums up his consideration of them: "The various exciting causes of Cholera," he observes, "may be arranged as follows:—

" 1.—Direct irritants of the alimentary canal.

" 2.—Atmospheric vicissitudes.

" 3.—Various meteorological phenomena.

" 4.—Malaria.

" By Malaria is implied any noxious change occurring in the atmosphere, whether from chemical action, or additions to its ordinary constitution, from whatever cause arising; whether dissolved, or merely floating in it: such as the emanation from decaying animal and vegetable matter, mineral effluvia, invisible animalculæ, or morbid vegetable germs.

" 5.—Several concurrent causes, to the exclusion of any single one.

" 6.—An unknown cause."

To the first of these, Dr. Alexander Knox implies assent. As to the second, "It is at once evident," he observes, "that the hygrometric, barometric, and thermometric conditions of the atmosphere must have varied through their entire range in an epidemic which, in its progress both eastward and westward, has visited every part of the globe."

To the third supposed cause Dr. Alexander Knox objects, "that the theory does not rest on the basis of any series of observations, and that, in the absence of facts, any speculations on the subject must be accounted purely hypothetical."

Upon the fourth supposition he remarks, "That we should still be at a loss to account for the prevalence of Cholera in particular parts of the country, to the exclusion of others; or, what is still more remarkable, on one side of a street, one part of a barrack, or square, or in a single vessel in a fleet."

Finally, Dr. Knox, in his recapitulation, says, "That the

* "The Cholera at Malta in 1837. From the Italian of Gtuseppe Hilon, M.D."

atmosphere is the medium through which the exciting cause of Cholera, whatever it may be, gains access to the living economy, appears certain; but beyond this the nature of the cause in question, although, probably, a specific virus, appears to be totally unknown."

Professor Webb believes, that of all the causes of Cholera, an atmosphere impregnated with sulphuretted hydrogen is the most potent; and he observes, that India abounds in districts where this gas spontaneously issues from the ground. He adduces the following account of Indian superstition respecting the malarious origin of the Hill Cholic, or Choleroid Cholic of the Himalaya:—"The peculiar character of Hill Cholic is, however, the excruciating pain in the abdomen; sometimes so severe, that the patient is not conscious of anything else, and one agonizing shriek follows another till the strength is exhausted, and low moans express his last sufferings. The prevailing belief among the Puharrees in the hills is, that it is a demoniac seizure, and that the evil spirit springs suddenly upon the unwary from dark thickets, and shady fountains and water-courses especially. These last are full of decayed leaves and putrid water. [It is worthy of remark, in reference to my opinion of its malarious origin, that men in perfect health who go to these water-courses, as to necessities, come back asphyxied with Cholic.] Nearly all cases with them are fatal; their treatment being, to get five or six strong lusty fellows to shake out the devil, and frighten him by loud cries."*

Dr. Keir, in considering the cause of the epidemic, remarks:—"It is still very obscure, quite as much so as that of the cause of the potatoe-rot, with which it may possibly have some connection; and what we do know about it is little more than mere conjecture. There is some probability, however, for the opinion, that the disease is induced by some deleterious vapour, or gas, perhaps proceeding from the bowels of the earth, which, mixing with our atmosphere, and applied to the body, or inhaled into the lungs, exerts its deleterious influence on the blood and vital organs; sometimes so strongly as to prove almost instantly fatal; in others, at various intervals of time."† Dr. Adair Crawford con-

* "*Pathologia Indica*; or, the Anatomy of Indian Disease." Calcutta, 1818.

† "*Practical Observations on the prevailing Epidemic, called Cholera.*" 1818.

ceives, that "It is difficult to draw any other conclusion from its irregular, capricious, and rapid progress over large regions of the globe, than that Cholera originates from some latent influence of the atmosphere on the functions of animal life, and that this influence is probably of a similar nature to those by which blights are produced in the vegetable kingdom." He adds,— "That it is an epidemic propagated by atmospheric causes, and not by infection, seems now to be very generally admitted. This is the opinion of the medical profession in Russia; so that all attempts to check its progress by quarantine regulations have been given up."*

Dr. John Wilson remarks:—"Little, if anything, can be affirmed respecting its origin; but almost everything authentic in its history, progress, and phenomena, testify to its having a local source, and generally very limited scope of operation. Thus, it appears simultaneously in different, distant places, leaving intermediate places untouched. It attacks in one town a particular district, street, or portion of street, beyond which it does not travel. In another town it shows itself among distant portions of the inhabitants, leaving long spaces unscathed. Again, while one town suffers severely from it, another in the neighbourhood has not a single case then, or thereafter; or the town which escapes this season falls fatally under its sway the next, when all the rest of the country is clear. These, and such circumstances as these, point as clearly as it is possible to point, at the endemic source of Cholera, although the *essential* cause of the disease cannot be ascertained."†

Other physicans, however, view the question in a very different light. Thus, Mr. Ambrose Blacklock,‡ Assistant Surgeon, Madras Medical Establishment, hazards the following opinions:—"The remote cause of Asiatic Cholera is the continual use of a diet deficient in the sulphur required to assist in forming sulphuretted hydrogen to preserve the colon, or part of the body requiring sulphuretted animal matter in its normal electrical condition, and so giving rise to morbid ganglionic excitability. By

* "Observations on the Asiatic Cholera, during a Residence in St. Petersburg, in 1848."

† "Treatment of Cholera in the Royal Hospital, Haslar, during the months of July and August, 1849."

‡ "The Leading Phenomena of Epidemic Cholera, with some plain Suggestions for its better Treatment and Prevention."

taking a skeleton map of the world, and brushing with colour those parts where the staple articles of diet are deficient in sulphur, omitting only those parts which afford to man abundance of animal and leguminous food, we have in the coloured portions a fair view of the world as it is liable to epidemic Cholera. Or we may arrive at the same knowledge by inspecting a rough tabular view, as subjoined :

	Parts of the World.	Prevailing Diet.	Character of Diet.
Choleroïd	Asia North Africa S. of Ireland Manufacturing Dis- tricts of England } Coast Places	Rice Rice and barley Potatœ Coarse bread, potatœ, oatmeal, ba- con fat, fish Fish	Not sul- phurous
Partly Choleroïd	Continental Eùrope { North of Ireland . . { Scotland All large towns . . { North America . . .	Wheat, rye, barley, with a little leguminous food and animal food Oatmeal and potatœ, with a little leguminous and animal food Ditto ditto ditto Nearly similar diet. Most of the poor population even worse fed Partly animal, partly vegetable	Only part sul- phurous
Not Choleroïd	South America . . . South Africa New South Wales . . South Sea Islands . . Polar Regions . . .	Beef Beef and mutton Beef and mutton Pork Seal and whale	Sulphur- ous

However, it is here proper to observe, that in a note to the above Table, the author allows that he has only aimed at an approximation to accuracy in his statement.

Dr. James Bird observes,* that from the experience of the past, it would appear that the disease, “even in India, is of *endemico-epidemic* origin, and arises from many concurrent causes and conditions, which alter the chemical constitution of the blood, and render it incapable of receiving those respiratory changes in the lungs, necessary for the production of animal heat, and the main-

* “Contributions to the Pathology of Cholera, embracing its History, Modifications, Stages, and Treatment, as the Disease appeared in the Bombay Presidency, from 1818 to 1842.”

tenance of the nervous functions. These causes and conditions may be briefly enumerated, as deficient and impure food ; sleeping in crowded, damp, and ill-ventilated apartments ; anæmia, or impoverished conditions of the blood, arising from previous disease, dissipation, and want ; deleterious influence of malarious emanations and animal effluvia ; close, humid, and negative electric conditions of the air ; mental anxiety, and depression ; and a general epidemic constitution of the atmosphere. But while the disease originates from these several causes, it manifests, in its progress from place to place, that it can attach itself to masses of the people, and can, under certain conditions, be disseminated from person to person."

Dr. Andrew Buchanan ascribes its probable remote cause to a miasmatic poison, diffused through the atmosphere in certain situations, and received into the lungs by respiration.*

M. Th. Doorjak, Médecin de la Cour Impériale, says, "D'après toute probabilité, le principe morbifique est répandu dans l'atmosphère ; il est vraisemblable qu'il agit sur l'organisme tant par la respiration que par l'absorption cutanée ; son action seule est très lente sans la co-opération des organes de la digestion ; quant à sa nature, il paraît qu'il ressemble à l'effluve des marais et des souterrains ; quant à sa manière de propagation, il a beaucoup d'analogie avec la scarlatine. Les animaux mammifères, ainsi que les oiseaux, paraissent ressentir son action délétère, quoique dans un moindre degré." †

Dr. W. L. McGregor ‡ observes, that "the remote exciting cause of Cholera is attended and preceded by a peculiar state of the atmosphere, and the remark is often made, that Cholera is likely to occur when no rain has fallen for a long interval, and the weather is close and oppressive. This condition indicates a positive state of the atmosphere as regards electricity, and a negative condition of the earth and its inhabitants. People feel languid, and many unwell ; but still there is no actual disease or epidemic. If under these circumstances any cause extracting still more electricity from our bodies should exist, we can easily see that some terrible disease must ensue. Such occurs in Epidemic Cholera.

* "Observations on Malignant Cholera, &c." 1848.

† "Mémoire sur le Développement, les Causes, et le Traitement, etc."

‡ "Treatise on the Blue Epidemic Cholera." Delhi.

A stratum of air near the earth's surface may be negatively electrified, that is, deficient in its due quantity, and passing along the earth, abstract electricity from the human race who come within its influence, provided the individuals be predisposed; for it is well known, that many escape, though living under the same roof with those affected; and even a little elevation will serve to remove individuals from the epidemic. This, then, appears to be the great remote existing cause of blue epidemic Cholera."

Dr. Evans, of Rush Medical College, U. S., after reviewing the miasmatic, animalcular, cryptogamous, atmospheric, telluric, electric, ozonic, and carbonic theories, and pronouncing them all unsatisfactory, observes: "Cholera is subject to no boundaries except those that prevent human intercourse. We find it in the densely-populated city, on the dreary desert, and wild western prairie. Laying low the inhabitants of the princely mansion, the cottage, and the Indian wigwam. Traversing all climates, from the scorching Indies to the regions of perpetual snow; and extending from the celestial empire of the East to the golden valleys of California in the West; attacking alike the indigent and the affluent, the filthy and the cleanly, the reckless debauchee, and the prudent valetudinarian. The young and the old, the black and the white, the yellow and the red man. In the dreary home of the latter, on the extensive plains that stretch out from the Missouri river to the Rocky Mountains, it is now committing its fearful ravages. And as if to put the blush upon our boasted knowledge and philosophy—our enlightened mode of investigation—our learned and logical reasoning—from his own observation he announces to his comrades what its history indicates as the true mode of its propagation, and commences to take vengeance upon the white man for bringing it among them."*

Dr. John Webster, in a paper read before the Westminster Medical Society, Oct. 6th, 1849, holds that the causes may be classed under the heads—Atmospheric, Local, Individual, and Exciting; but that much yet remains to be ascertained, so as fully to explain the various phenomena.

In a popular and very ably-conducted journal, we find an article, entitled "General Considerations on Epidemic Diseases,"

* "Observations on the Spread of Asiatic Cholera, and its Communicable Nature." Chicago, 1849.

which contains the following observations, well worthy of consideration :

“ Blending now the two propositions that we have been illustrating with regard to epidemics, our notion of these terrible occurrences would assume the following theoretic form :—That occasionally, at particular spots of the earth’s surface, there takes place a sudden derangement of the aggregate of atmospheric or telluric conditions necessary to human life ; that sometimes this derangement is local and temporary ; but that at other times it extends itself in some mysterious way, creeping slowly in the shape of an impalpable morbid influence, and generally in a westerly direction round the earth and through its atmosphere, until the whole world is affected ; those spots suffering most severely, however, that present to the advancing morbid influence certain combinations of circumstances that specially attract and hold it. Still, however, all this is comparatively vague ; and the questions naturally arise—What is the particular derangement, alteration, or reduction of the terrestrial condition of human life that commonly originates epidemic disease ; and is the derangement, alteration, or reduction the same in kind in all epidemics, and only different in degree ? How, too, does the derangement or morbid influence spread and extend itself ; and what determines the rate of its dissemination ?

“ Such questions as these our science is, and will long remain, too meagre to answer. In the talk, however, that now prevails on the subject of epidemics, two different modes of conceiving the physical character of such influences are confusedly discernible. In speaking of cholera, typhus, &c., some theorists habitually make use of such phrases as ‘ poison in the atmosphere,’ ‘ disseminated virus,’ ‘ cholera-miasm,’ &c. At the bottom of this mode of speaking there evidently lies the idea that epidemics are caused by the positive addition of some unusual and noxious ingredient—necessarily of a gaseous kind—to the normal atmosphere. The quantity of this ingredient may be so small as to escape the most delicate tests, or, as Dr. Prout’s experiments on the weight of a given bulk of air during cholera (thermometrical and barometrical conditions being the same) would seem to indicate, it may in some cases be quite appreciable. Under this ‘ poison-theory ’ may be also included that variety of the same mode of thinking which, without supposing the addition of any positively new ingredient, yet supposes such a change in the relative proportions of the established constituents of the atmosphere (oxygen, nitrogen, carbonic acid, water, &c.) as would convert the wholesome fluid into a veritable though slow poison. A sudden addition or diminution of the quantity of moisture, for example, might have something of this effect. In either case the theory is, that a contaminated local atmosphere may extend itself, and that, being breathed by the lungs of men, it acts on the system by some process of vital chemistry, so as to produce death. Thus, of Asiatic cholera, the Sanitary Commissioners say that, ‘ it appears to be caused by a poison diffused through the atmosphere, which acts with peculiar intensity on the mucous membrane of the alimentary canal.’

Somewhat different from this theory is that which seeks for the cause of epidemics not in a change of the ponderable constituents of our atmosphere, so much as in a change in the activity of the imponderable influences or forces that hold the whole earth together, and particularly in a change of its electrical conditions. The two theories are not necessarily inconsistent; for any change, for example, in the composition of the atmosphere hanging over a marsh or lake, would necessarily involve some change in its electrical condition; and, *vice versâ*, a sudden electrical change in such a case would thrill like a re-arranging influence through the whole mass of atmospheric atoms. Cholera or plague may consist, therefore, in an envenomed or altered atmosphere; and yet the characteristic and deadly fact respecting this envenomed and altered atmosphere may be in the abnormal electrical character that is thus given to it. In fact—though to speak of cholera or plague as ‘something electric,’ or a ‘derangement of the telluric electricities,’ is equally vague as to speak of it as a ‘poison in the atmosphere’—such a leaning towards the electric view of the case seems a better intellectual direction.”*

In the metropolitan journals, and daily newspapers, every *quæstio vexata* respecting the origin, course, nature, and treatment of the prevailing epidemic, was boldly discussed; and, armed to the teeth, with their vizors down, many of our busiest practitioners entered the arena of controversy, hazarding the most conflicting and opposite opinions; nevertheless, in this anonymous contest, much ingenuity, scientific knowledge, and practical information, were frequently displayed, although the non-professional portion, or great majority of the public, could scarcely appreciate the merits and bearings of the different doctrines which were propounded. The apology for thus obtruding disquisitions strictly professional upon the public was obviously the wide and vital interests which were at stake affecting all classes of society, which could not be appealed to by the restricted channels of medical literature. During so great a national calamity, the most learned and punctilious physician is justified in addressing himself directly to the popular organs which disseminate information through all classes of society. Hence, at this calamitous period, our newspapers frequently contained special articles and paragraphs, which were of great scientific interest and practical value. To return, however, to the history of the speculations which were advanced in order to explain the origin of Cholera. A correspondent in the *Morning Chronicle*, signing himself, “Anti-Zymosis,” contended that “during the prevalence of Cholera, the atmospheric elec-

* “Chambers’s Edinburgh Journal,” 1849.

tricity possesses but one-half of its usual intensity," and connected with this fact the important observation that the proximate cause of Cholera is the tendency of all animal substances to putrefaction in an atmosphere deficient in *ozone*, an oxide of hydrogen, the product of electrical action, and the amount of which in the atmosphere varies in an exact ratio with the electrical intensity. During three months, when the Cholera most prevailed, it was remarked that not the minutest quantity of ozone could be detected by chemical tests in the air of London. Birmingham, Berlin, and Lyons, having escaped the pestilence, it was suggested that, as ozone is generated during combustion, where large fires are kept up, as in those places, a vast quantity of ozone might thus be produced, which would explain the exemption of such localities from Cholera. To this view of the case, "Medicus," in the same journal, opposes the following:—If ozone is "produced by an electrical state of the atmosphere, and Cholera results from ozone being deficient, and influenza from its being in excess, then, as atmospheric electrical action must be going on over wide districts, the plus or minus presence of the ozone produced by it should be manifest by the Cholera occurring as widely as the range is of the atmospheric influence. Yet we find the Cholera prevails in a locality whose square is only one or two miles, while whole towns and villages surrounding it, and with every decomposing agency going on in them, are wholly exempt from its attacks, and this not merely for a season, but invariably and enduringly."

Another correspondent in the same journal recollects reading, that at a period (fifteenth or sixteenth century) when Europeans fed upon rye bread, owing to a disease which developed itself in the grain, a very fearful sickness, followed by deaths innumerable, supervened. This was, of course, merely the well known "Ergotism," of which later times have presented some examples.

CHAPTER III.

Novel speculations on the cause of Cholera promulgated in the last epidemic.

DURING the prevalence of the late epidemic, some opinions were broached respecting the cause and mode of communication of Cholera, which are entirely novel. The truth or error of these opinions remains yet to be decided ; but a short account of them appears necessary.

Whatever may have appeared to be the opinions held by medical men respecting the mode of communication of Cholera, the debate has, in great measure, been limited to the question, whether any definite principle or agent capable of exciting the malady in a person previously healthy, was given off from the body of a person affected with Cholera, or whether the active cause did not rather spread by virtue of some innate force or power of increase, which was in no wise connected with the systems it affected. According to either supposition, or according to the view which regarded Cholera as the result of some changed condition in the electricity of the earth and air, or of some alteration in the composition of the air, the atmosphere was supposed to be the channel of communication. An entirely different opinion has been lately advocated. It has been attempted to show that the atmosphere is not to blame in any way ; that it, neither by changed composition, or by altered properties, or from superadded elements or principles, has anything to do with the diffusion of Cholera. Not air, but water, is said to be the medium by which the Cholera agent spreads. Those close and ill-ventilated hovels—the abodes always of fever, and at

intervals of Cholera—are supposed to be ravaged by the latter, not on account of the foetid atmosphere, laden with impurities and effluvia from person and from habitation, but simply because the active cause of Cholera has found its way into the drinking-water of the inhabitants, from some accidental admixture with the intestinal discharges of persons affected with Cholera. Whatever may be the fate of this opinion—and we strongly suspect it is not based on very stable arguments—it is impossible to deny that it is a new feature in the discussion on Cholera, and that it has been argued with great skill by its able proposer.

The facts which originally led Dr. Snow to the opinion alluded to, are the following:—It has been long known that in every epidemic of Cholera, curious instances occur in which the disease appears to be localized. It attacks heavily the inhabitants at one spot; it spares entirely others, who may yet be in close proximity. The explanation of this circumstance has been sought either in some differences of locality or mode of living, or in some peculiar want of predisposition on the part of those persons who escaped untouched. Occasionally, however, these explanations have not been applicable to the circumstances of the case; and then the difference of spread has been referred to the “capricious action” of the choleraic virus, and has been included among that extensive series of phenomena which seemed to defy, for the time, all arrangement and all law. A case of this kind occurred to Dr. Snow. Two small courts in Horsleydown are situated close to each other; in both courts the houses are built exactly alike: the back of one row joins with the back of the other, and between the two are necessaries and cesspools, common to both; the inhabitants of both rows are of the same condition in life, follow equivalent trades, and have analogous habits. Yet one of these courts was, in the late epidemic, severely affected by Cholera, while the other, at the time, nearly escaped. The most obvious differences between the two courts are, that one is larger than the other, containing fourteen houses instead of eight, and is placed on somewhat lower soil. Yet these slight differences did not appear to Dr. Snow sufficient to account for the localization of the disease in one place, and its non-extension to the other. He resolved then on a more minute investigation, and, after some inquiry, discovered that the two courts differed in their supply of water. In the court

in which Cholera prevailed, the water was drawn from an impure well; it was most offensive, and contained evidently decomposing organic matter, in large quantity. In the other court, the water was pure and fresh.

Admitting that the difference in the water supply was the real and true cause of the difference in the attack of Cholera, two explanations suggested themselves:—the impure water may have been a determining cause; a something added to the other causes, special and accessory, and determining their action. The inhabitants of the other court, equally liable from situation and bodily predisposition, were yet not exposed to this additional, and, as it were, immediate exciting cause, and consequently escaped. This explanation is not, however, adopted by Dr. Snow. He ascribes a more immediate and direct influence to the impure water. Not only was it, according to him, an assisting and accessory agent, but it was the principal, and, in fact, the only cause of the Cholera. The water was not, he supposes, a simple noxious agent, giving strength to that which was powerless without it, but was actually the sole and independent source of the disease. In fact, Dr. Snow abandons as illusory, and condemns as untrue, all speculations which have been rested on presumed atmospheric impurity, and believes that the water itself held the toxic agent. In order to explain how the active cause of Cholera thus passed into the water of this well, Dr. Snow advances the hypothesis that the intestinal fluids so largely excreted in Cholera, contain the special poison. These fluids, accidentally or from ignorance, were permitted to mix with the water of the well; persons drinking this water then received directly into their alimentary canals some portion of this active principle, which immediately began to exert its baneful influence. In order, however, to account for the *first* case which occurred in the court, Dr. Snow is compelled to suppose that the water was contaminated before it entered the well: afterwards each case added fresh portions of choleraic poison to the already unwholesome and poisonous fluid.

In support of this case, Dr. Snow cites a second one; viz., the instance of Albion-terrace, in some houses of which occurred a frightful mortality from Cholera; while other houses, and the immediate neighbourhood, entirely escaped. On investigation, Dr. Snow found that here also there had occurred a contamination

of the water from sewage matter in those houses the inhabitants of which were attacked, and not in the others. This case, however, rests on more disputable evidence; other causes were here decidedly in operation; and the statements made by Dr. Milroy would rather lead to the conclusion that the contaminated water was merely an accessory, and not a very important cause.

Dr. Snow has endeavoured to apply his hypothesis to the course of the Cholera in England, or has rather singled out such facts in this course as seemed to accord with his view. He has not been able to bring forward any facts which will bear comparison in point of weight with those given above.

Dr. Snow has not attempted to specify the cause of Cholera in water, which has, however, been done for him, as will be presently mentioned. Nor has he any other grounds for the supposition that the cause of Cholera is given off from the intestinal surface, except that such an opinion might explain the diffusion of the disease by the medium of water, and is in accordance with the opinions he entertains regarding the primary seat of Cholera being the gastro-enteric membrane.

At present these opinions of Dr. Snow's can be considered only ingenious speculations, which must be submitted to the test of careful inquiry.

An opinion somewhat similar has been advanced by M. Pellarin, who has forwarded to the French Academy of Medicine many documents relative to the spread of Cholera. These documents have not yet been made public, but M. Pellarin appears to consider that the discharge of Cholera contains the contagious principle, and that it is from the reservoirs of sewage, and from the matters of the drains into which such discharges have passed that the morbid principle rises. But M. Pellarin does not appear to consider water the only or even the common medium, or the mode in question the only mode of spread.

A singular episode in the history of Cholera, seemed at one time to accord with the opinions of Dr. Snow. This was the observation made by Drs. Brittan and Swayne, and confirmed and extended by Dr. William Budd, of the existence of peculiar microscopic bodies in the Cholera discharges, and which bodies were held by Dr. Budd to be some species of fungi. The bodies described and figured by these gentlemen, were, however, not all of the same kind; they

had included apparently, under the supposition that the several forms were phases of evolution or involution, particles of foreign matter, such as food, and medicines, or organic matter thrown out from the intestinal surface, or specimens of fungi rapidly formed in the appropriate nidus which the Cholera discharges afforded. The following enumeration of the microscopic forms figured by Drs. Brittan, Swayne, and Budd, is given in the able Report of the College of Physicians :

"1. Rings which enclose a free area and which often are broken. These are usually of minute size, according to Drs. Brittan and Swayne, but occasionally large, according to Dr. Budd."

These rings appear to be formed by altered vegetable, spiral, and annular tissues ; sometimes also by particles of chalk, and perhaps also by altered animal nuclei.

"2nd. Globular or oval cells, chiefly of the middle size, which have a thick wall with numerous small eminences on its surface, and which contain a granular mass in some instances separated by a clear space from the wall of the cell."

These are considered by the Committee to be identical with the spores of various species of uredo.

"3rd. Bodies having apparently the form of discs, with thick elevated and somewhat irregular curved margins ; the central area flattened and obscurely granular. They have generally a yellowish or pale brown tint, which varies in depth with the colour of the fluid containing them. These are the most peculiar of the bodies found in Cholera, and differ from the rest in being more or less soluble in ether."

The Committee state that these are evidently not cells, nor have any organised structure which can give them any claim to be regarded as living organisms. The Committee are disposed to consider them as of a fatty nature.

"4th. Large broken cells, having apparently homogeneous membranous walls, and containing some well-defined oval bodies."

The Committee think they may be starch or bran cells.

The labours of the Committee of the College of Physicians not only prove that the bodies figured by the observers before referred to, were of heterogeneous nature, but they also proved, that all these bodies, even those included under the 3rd head, were not peculiar to the discharges of Cholera, being absent frequently from such discharges, and being present in the discharges of other diseases, such as those of typhoid fever, a fact first pointed out by

Dr. Jenner. These circumstances proved, that whatever might be the nature of some of the bodies indicated by Drs. Brittan and Swayne, and their real source is even now not absolutely determined, these bodies could not be considered as essential to Cholera.

At the time when it was supposed that these so-called "cholera fungi," or "annular cells," were universally present in cholera discharges, a still greater interest was attached to the statement, by the announcement of the discovery by Dr. Brittan, of similar bodies in the *air*, and by Dr. Budd of similar bodies in the *water*, of Cholera districts. This observation of Dr. Budd, agreeing as it did with the views then newly promulgated by Dr. Snow, seemed to give strong support to the hypothesis of this latter gentleman, and also to gain itself confirmation from Dr. Snow's facts. The observations of many gentlemen, however, both in London and Edinburgh, have proved that these bodies are not universally or even generally found in the water of infected districts; and the discovery of "annular bodies" in the air has not been confirmed by a single individual.

While, therefore, the merit remains to Drs. Brittan, Swayne, and Budd, of having pointed out as an occasional element in Cholera discharges, certain bodies which had previously been overlooked, it does not appear that these bodies stand in any very intimate relation with the disease, in the progress of which they occur.

Another novelty, as it may be termed, which has gained some advocates in the last epidemic, is the application of the ozone theory to explain the diffusion of Cholera. The principle called "ozone," whether it be an allotropic condition of oxygen, or a new combination of oxygen and hydrogen, was supposed by Schönbein capable of producing catarrhal symptoms; and he suggested that as it is formed in great quantity during certain conditions of terrestrial magnetism, it might, by being generated in unusual quantity, and by being widely diffused, cause those epidemics of Influenza which every now and then course over the globe. This hypothesis, for it was no more, and has never yet been more, was seized upon by certain rash speculators, and applied at once to Cholera. Strange to say, the men who thus endeavoured to make an almost unknown agent, of whose composition and nature they knew little, account for the existence of a disease, of whose phenomena and observed developments they

knew nothing, were men of some reputation in science, who would, had they been dealing with matters with which they were conversant, have jealously scrutinized every step and every proposition which they made or deduced. But when they were dealing with some of the most obscure natural phenomena which the complex and abstruse science of medicine has to investigate, these very philosophers betrayed the credulity of an uneducated person, and the haste of an unwise one. The doctrine of the production of Cholera by ozone has not a positive fact in its favour, and is strongly opposed by many observations, which the defenders of the theory referred to have prudently ignored.

The hypothesis of electrical changes producing Cholera at once, and not through the medium of ozone, has been already alluded to. This is no new "idolum," but a very old one. Some of those who witnessed Cholera in its terrible outbreak in India, from 1817 to 1822, were ready enough to fall back on some hypothesis of an electrical cause when they found their common explanations fail them. The present epidemic has in reality added little to the observations then made. The inactivity of electrical machines, which has been noted at some places, as at St. Petersburg and Paris, has not been noticed at Stettin, nor, we believe, in London. Whether changes in the terrestrial and atmospheric electricity have any casual relation to Cholera, could not be for a moment affirmed by any one who will apply to this question the ordinary rules of scientific evidence, and not regard it with a mind disposed to receive at once any assertion which sounds imposing and knowing, but may be, for anything the evidence says to the contrary, really incorrect and scientifically worthless.

It would be useless to pursue this chapter further. The only new suggestion respecting the cause of Cholera made in this country of any importance, is that of Dr. Snow, and the value of this is as yet unknown. The electrical hypothesis waits now as formerly for positive and authentic facts by which it may be approved or condemned. Nor are we disposed to agree with the able editor of *Chambers' Journal*, that the leaning towards this hypothesis is "a better intellectual direction."

CHAPTER IV.

The dwellings of the poor a source of Cholera.

HAVING referred already to some of the causes of Cholera, we now consider it necessary to notice emphatically one cause which, during the late epidemic, appears to have added strength to the disease, and to have rendered it doubly fatal: we mean the state of the dwellings of the poor. To most persons the very name of "home" has associated with it some of the tenderest reminiscences; but how sad the reflection that the poor man's home should be infested with all the elements of disease and death!

It is well known to the medical profession that the health of working men is more precarious than of individuals belonging to the affluent classes of society; and statistics incontestibly prove, that as "money purchaseth all things," so it may be employed with effect to ward off disease, and thus prolong, in the aggregate, human life. Whatever may have been the case in ancient times, death does not, in the nineteenth century, visit with equal step the rich man's mansion and the poor man's cottage. The rich, born and nurtured in the "lap of luxury and ease," are protected from every evil wind that blows; the poor, from their cradle to their grave, have to contend against exposure to causes inimical to health and the duration of life, the fatality of which is aggravated by the cupidity or ignorance of those who might provide shelter for the houseless, and cleanly and healthful dwellings for the lower classes. In making this statement, we would not have it supposed that even if our sanitary laws were as perfect as it is possible for human governments to

make them, a higher rate of sickness and mortality would not prevail among the poor than among the rich; all that is intended to be conveyed is, that with improved sanitary laws there would be less sickness amongst the poor, and the mean duration of human life would be considerably increased. Epidemics have always committed the greatest havoc among those from whom poverty has wrested the shield which could most effectually resist the shafts of disease. This was the case in the late visitation of the Cholera; for while there were occasional instances of individuals belonging to the "better classes of society" succumbing to the disease, it was from among the artisans it selected the majority of its victims.

In passing through London, the most superficial observer cannot fail to notice that squares and streets are built with a scrupulous regard to the different ranks of society. The courtly part of the metropolis is distinct from the commercial; while in each we can descend from broad thoroughfares, flanked on each side by well-built houses, to narrow lanes, squalid courts, and filthy alleys, where the tenements are infinitely varied as regards condition, size, and plan. Here the victims of poverty are huddled pell-mell together—some pursuing an honest vocation for their daily bread; others appropriating to themselves whatever they may chance to capture without detection; others living upon the proceeds of human lust—all of these wretched beings rendering their moral, as degraded as their physical, condition. The mechanic, who has wages to afford it, occupies the respectable back street; in the next the labourer, with more limited means; while thieves, beggars, and prostitutes take refuge in the various "rookeries" open for their reception:

" I turn'd into an alley 'neath the wall,
And stepp'd from earth to hell!—The light of Heaven,
The common air was narrow, gross, and dim;
The tiles did drop from the eaves; the unhinged doors
Totter'd o'er inky pools, where reek'd and curdled
The offal of a life.
Shrill mothers cursed; wan children wail'd; sharp coughs
Rang through the crazy chambers; hungry eyes
Glared dumb reproach, and old perplexity,
Too stale for words; o'er still and webless looms
The listless craftsmen through their elf-locks scowl'd."

In years gone by, the rich were blind to the dangers they created by thus thrusting together and concentrating large masses of poverty and wretchedness; science, however, has recently couched their diseased eyeballs, and light has penetrated them. The capitalist who speculated in bricks and mortar for the use of the labouring population, took nothing into his estimates but the rate per cent. for the money invested. Provided this was good, the landlord cared nothing for epidemics, or pauperism, or crime, — frightful evils, either produced or aggravated by contempt for the domestic comforts of the poor. Before the Legislature interfered, cottages were erected upon undrained swamps; mere holes were dug, either in or out of the houses, for the reception of human excretæ; rooms were formed hardly high enough for a man of ordinary stature to stand upright, and where the air and light of heaven were allowed but partially to enter; while to these dwellings the wretched inhabitants had to make their way through unpaved streets, almost impassable from mud and filth. How true is it of modern London, as Juvenal tells us of ancient, declining Rome :

“Nos urbem colimus tenui tibicine fultam
Magnâ parte sui : nam sic labentibus obstat
Villicus, et veteris rimæ contexit hiatum,
Securos pendente jubet dormire ruinâ.”

In the more ancient parts of the metropolis we find old and dilapidated houses made profitable to the owners, by being let as lodgings for the poor. In these places the inmates have to make their way to their various apartments up broken staircases, black with the long accumulation of dust and dirt. The rooms themselves are ill-lighted, badly ventilated, dilapidated, and swarming with vermin; and from these combined causes the atmosphere is loaded with impurities of a most offensive nature.

“The air breathes upon us here most sweetly,
As if it had lungs, and rotten ones,
Or, as ’t were perfumed by a fen.”

In nearly all these ancient dwellings a cesspool in the cellar serves the double purpose of receiving the excretæ and of generating diseases. If the premises have drains they are of the most barbarous construction, either *ascending* or running on a dead level to the sewer. Most of the old drains are square, made of

brickbats, and covered with slates—or have no covering at all. As a natural consequence large quantities of solid matter are deposited in the drains, and only a portion of the liquid sewage reaches the street. The bricks, being soft, absorb a large proportion of the fluids, and the surrounding earth takes from the surcharged bricks, the moisture. As the drains frequently become choked, the sewage water of the house finds its way in larger quantities through the bricks under the floors, and forms large pools. Through these ill-constructed conduits the rats also from the main sewer make their way, and add to the nuisance.

In these “homes of the poor” we find every room crammed with human beings, and not unfrequently the larger the family the smaller the apartment they occupy, because the father has less means at his command to pay for better lodgings. In the day the rooms are alternately used as washing places, kitchens, drying stoves, and workshops; at night they are all dormitories, in which many human beings sleep, either on a bed or on the floor. Lord Ebrington gives a graphic description of the dwellings of the poor in the neighbourhood of Golden-square. “I visited,” he says, “this quarter, in company with Mr. Toynbee: it is one inhabited by the most respectable of the labouring classes. Suffering, yet not degraded, they all received us with courtesy, and took kindly our few words of sympathy. Several, when asked what they earned, and what they paid for rent, owned to poverty; but none either begged or hinted for money,—they evidently did not expect any, and I offered none. They were all deeply sensible of the misery and sickness brought upon them by the condition of their dwellings, the impossibility of keeping them clean and tidy, and by the fetid smells, to which even habit had not reconciled them; but they never murmured, nor spoke unkindly of any one. These families, for the most part, have but one room, about twelve feet square, in which they sleep and live, and some carry on their trades besides; I found them full of steam, from clothes hung up to dry across the room, after having been washed—many of them successively in the same water, owing to its scarcity. In one, besides, there lay a child, dead five days: *we did not see one healthy face*, either of adult or child. Many children were ill, some with measles, some with fever; many with scrofula, which had covered them with wounds. In every family

we heard of sickness and death ; some had lost two-thirds—hardly any less than half—their children. The houses were partitioned off into lodging-rooms, at rents averaging 2s. 6d. a week. In one case they had but an intermittent supply of water, at the bottom of the house, which, in some cases, was kept in water tanks of decaying wood. Some of these houses were close to slaughter-houses, where I saw the steam reeking up from the hot carcases ; some over cesspools, cleaned out,—some once in five, some once in seventeen years ; the walls were filthy ; the smells were either abominable, or exchanged for a closeness still more oppressive ; the passages dark and tortuous. And yet here were living the most respectable of the labouring classes, porters, policemen, and such like, who, though earning high wages, are pauperized by the sickness brought on them by these dwellings.”

In the district of Bethnal-green, where Cholera raged to a fearful extent, the homes of the poor are of the most wretched description. In some cases “summer-houses,” in the gardens of the weavers, have been converted into dwellings, which afford but a partial protection from the weather. They are placed on the undrained soil ; the privies are holes dug in the ground ; the supply of water is derived from wells, polluted by the intermixture of the slops and manure of the houses. Dr. Hector Gavin, in his “Sanitary Ramblings,” describes District No. 4, of Bethnal-green, as “the hot-bed of epidemics.” He says that as many as thirty persons reside in a single house ; and that in half a square mile 30,000 persons are congregated. The houses are generally of the worst description, and four-roomed. Those built by the French refugees are several stories high, and have large rooms on each floor, with a common staircase. Each room contains a family. The atmosphere is most oppressive, for it is a common practice to retain the faecal matter in the rooms, in order to avoid the filth of the ordinary privies and the exposure of going to them. It had been observed for many years before the first advent of the Cholera, that the poor were especially obnoxious to disease ; and members of the medical profession have again and again stated that much of the physical suffering of the poor was produced by the wretched habitations they were compelled from their limited means to occupy.

The “behaviour” of the Cholera in 1831 further opened the eyes of the profession and the public. The strongholds of typhus

became the impregnable fortresses of the Asiatic pestilence. In the crowded courts and alleys of our cities it slew its thousands, and from those spots it occasionally launched its arrows into the broad thoroughfare, and struck down more wealthy victims. Science, though her hands were bound, had yet her eyes open; and while she lamented the weakness of curative medicine, she rejoiced in the hope that preventive measures might eventually succeed in annihilating or arresting this most appalling epidemic. To this circumstance we must attribute the rise and progress of the agitation for sanitary reform. Men in high places have been taught, that a disregard of the physical welfare of the poor endangers not only the health of the rich but the stability of the whole commonwealth.

The dwellings of the labouring population, both in our cities and villages, are either built without any regard to hygienic rules, or are rendered unhealthy by the number of persons compelled from poverty to congregate within those dwellings;—

“—— magnis opibus dormitur in urbe ;
Indè caput morbi,”

says the Roman satirist, and he enunciates a fact applicable to our own times. Even supposing the houses of the poor to be well built and well drained, they become unhealthy from being crammed with human beings, and from the domestic operations which in them are necessarily carried on. There is scarcely a day in which soiled linen is not washed by one or more of the families in the house; and lines are extended along the passages, up the stairs, and in the rooms for the purpose of drying it. There is a daily scrubbing or wetting of the floors; and nearly in every room there is a bedstead, which is either turned up during the day, or occupies a large portion of the apartment. In either case the blankets and linen come but little in contact with fresh air. At night every room is closed, and the inmates are thus compelled to breathe an atmosphere surcharged with noxious exhalations. That such “homes” are productive of Cholera the following facts, of which we have personal knowledge, will abundantly prove.

In one of the small streets in the west end, we once visited, with a medical friend, a child which had been suffering many months

from diarrhœa. The father was a brickmaker, and could earn during the summer about £3 weekly. For the sake of economy and convenience, himself and family (seven in number) occupied the front kitchen,—a room about fourteen feet square and rather more than six feet high: the ceiling being but just above the level of the street, a very limited amount of daylight could be admitted through a small window, defended with iron bars on the outside. The family were at dinner when we arrived. In a dark corner of the room was a stump bedstead, in which we found the mother, recently confined, and the sick child; and, from the peculiar circumstances of both, and with only the occasional attendance of one of the lodgers as nurse, the personal and the bed linen were not in that cleanly state generally considered necessary to health. In another part of the room sat the husband and a young man at dinner. A line was extended across the room, upon which were hung some articles to dry; and by the fireplace stood a wash-tub, from which they had just been taken. The description of this room will serve for all the apartments in the house; nay, for all in the street—in which, later, Cholera raged with the greatest virulence.

The report of the ravages of Cholera in the eastern and southern districts of the metropolis had not long reached the fashionable districts of Belgravia before the attention of the inhabitants was attracted to its obscure streets. With an eccentricity for which Cholera is remarkable, it visited a particularly poor locality, swept off its victims, and then passed on to another—till at length it reached the street in which our youthful patient lived, and the first victim was its father. In seven hours he succumbed. The pestilence once commenced, it ran like wild-fire through the street—not, however, invading every house, but only the most wretched.

The next victim was a sister of the man to whom we have just referred. The house in which she lived was a hovel of the humblest description. It consisted of two rooms, one on the ground-floor, another above, with a “lean-to” at the back,—which served as a dormitory for the children, seven or eight in number. The woman died of consecutive fever, after seven days’ illness. The house was entered by a narrow passage, the floor of which was rotten and broken in various places. The room in which

the woman died was about seven feet wide, and ten or twelve feet long; and at night, during her illness, the floor was the sleeping-place of several human beings. For seven days the corpse was kept in this apartment,—the family, and one or two sisters, sleeping together on the floor, in the presence of the dead.

Three doors distant from this house a poor man was attacked. The room in which he dwelt was hardly large enough to hold his bed. In four hours his sufferings were terminated by death. On the opposite side of the way, a man living in the front-room of the first-floor was attacked. He had experienced no premonitory symptoms, but went to bed in his usual health. At midnight the Cholera seized him, and at four A.M. he sent for medical assistance. The surgeon on entering the house was struck with a peculiar “earthy” smell in the passage. It arose from a damp and unwholesome cellar beneath. In eight hours the patient died. He had resolved to leave the house in consequence of the “bad smell” in the morning before the doors were opened, but he deferred his purpose till death summoned him to the grave. Five months previously, the Local Board of Health had ordered the privy to be emptied, and a drain to be constructed into the sewer. It was done; but the tenant of the house, to avoid expense, had a shallow trench dug in the garden, into which the soil was emptied, and covered over with two or three inches of earth. The wife of a man living next door, but the window of whose apartment opened into this garden, was attacked with Cholera.

Facing this street were two cottages in which five cases of Cholera occurred, one proving fatal. The smell was so intolerable in the morning, before the houses were opened, that lodgers rushed, with suspended breath, to the front or back-door to open it, and breathe the external air. In one of the back-kitchens was a cesspool, six feet deep and three feet wide, filled with soil. In the yards were three cesspools, which were subsequently emptied by order of the local Board of Health. In some of these houses the drains were so badly constructed that the more liquid parts of soil escaped frequently into the surrounding earth, producing a stench in the houses almost intolerable to the inhabitants.

The published official documents of the Government incontestibly

prove, that the houses of the poor are fertile sources of disease ; and it is to be hoped that some legislative enactment will ere long render them more conducive to health and comfort. It is not in London only that the labourer and his family are compelled to occupy tenements which demoralize and destroy them. In whatever cities or towns Cholera, or any other fatal epidemic, has prevailed, there we find the artizan badly lodged. In Liverpool, Manchester, Edinburgh, Bristol, and Gloucester, the fact is palpable ; and we have before us a Report of the Sanitary Condition of Sheffield, in which Cholera, fever, and consumption, are attributed, in not a few instances, to the neglected condition of the dwellings of the poor. One extract only we shall make :—"Peacroft is exceedingly close, the rooms of the houses low, dark, and ill ventilated ; a privy here, which is perfectly full, is exceedingly offensive, and the house-drains are bad. Eighteen persons were all recently afflicted with fever in this yard at the same time ; and on two occasions, during the last fifty years, every inhabitant suffered from the same disease. One tenant has lost the whole of her children, nine in number, during her residence here. A privy, in the lower part of Cupola-street, has been placed with so little consideration for the health or comfort of those near it, that it drains freely into the adjoining house, and evaporates into the chamber above ; and altogether is so pernicious, that the late tenants, both husband and wife, died from its effects. In Court 3, Edward-street, fever is prevalent among the children. Ten out of a family of fourteen children have died in the house nearest the privy ; the Asiatic Cholera was also very bad in this yard, and other cases of death occurred."

It is vain, under such circumstances, to expect our labouring population to enjoy a high degree of health, or to exhibit an elevated morality. They have been degraded and pauperized to a large extent by their superiors in society, who ought to have exhibited a greater regard for their social comforts. A paternal Government will respect the just demands of medical science and the claims of humanity.

Will the reader bear with us yet a while, and accompany us to a few of the scenes we have lately visited ? In the early part of last November a poor boy, of ten years old, suffering from fever, came under our observation. He was miserably emaciated

by want and by disease, and evidently in a hopeless state. Hearing that his brother had died from the same cause, and that his mother and sister were then lying ill, we determined to visit their home.

It was the 9th of November when we found a spare hour to visit the wretched room he called his home. Poor lad! the Angel of Death had by that time borne him to that world "where the wicked cease from troubling, and the weary are at rest."

From a court-yard leading out of one of the city thoroughfares we entered the abode of the mother. The room, about eight feet by ten, smelt close and offensive. A hard-featured woman sat in a chair watching the last hours of the unhappy woman—a pauper nurse by a dying pauper. The mother herself lay on a heap of clothes, dignified by the title of a bed. The couch thus formed occupied the whole of one end of the room. Emaciated to the last degree, her hectic check, sunken, yet still bright, eye, livid lips, panting breath, short hacking cough, conjoined with a deadly cavernous gurgling beneath her clavicles, told her present condition,—told that ere many days, she too would be numbered among those who had been. While surveying the wretched home, the tiny coffin of a child, perhaps some three years old, caught our eye. It was that of the sister. The detail of her case we gathered; and no doubt she, like her two brothers, had been cut off prematurely by "*the fever*," as the people emphatically termed it. The mother's tale was one of the short but touching "*annals of the poor*." Her husband had died some two years before; she had parted with the greater portion of her worldly goods; had worked hard night and day, and occupied this little room with her three children. Her second boy sickened of fever and died. He was delirious; she sat up the night with him. He wanted nourishment, so she worked during the day for him. She fell ill herself—what matter! she could still crawl about. The little girl fell sick of "*the fever*" and "*was like to die*," she said, "so I could not lie by. Jemmy then sickened, and they sent him to the hospital. I could get about no longer. I shall not trouble them long."—It was true. Foul air and pestiferous vapours, added to fatigue and want, had induced phthisis; and when no longer able even to help herself, much less to aid the dying infant, she procured a nurse from the workhouse.

We passed from this abode of death, where lay a mother and her three children struck down by disease which would never have visited them but for the want of due sanitary regulations. We thought as we passed Guildhall, then decorated for the feast, that surely the blessings of the poor would have been more grateful to the city authorities than the odour of the banquet!

There are many courts leading from the south bank of the Thames, the ventilation of which is effected by odoriferous gusts that ever and anon sweep up their narrow chink, laden at low water with stenches which the frequenters of those districts know too well. In one of these narrow courts (from houses opposite to each other neighbours might have shaken hands) in the front room on the ground-floor, lay, in the last spring, on a bundle of dirty linen, a man some thirty years of age, whose yet shrunken fingers, and other signs not here to be detailed, evidenced pretty clearly the truth of his own tale, that he was but then recovering from an attack of Cholera. The room was small and dark; there were no drains to the house; two grim men, and as many haggard women, occupied the same room, but a stench filled the apartment too detestable to have proceeded from any of these living beings. A grimmer object tarried there; in the far side, on tressels, was a shell—on removing the lid we exposed a corpse. The parish and the poor were not agreed as to who should bury the dead,—and the half-putrid mass lay there, to diffuse death among the living.

You who can scarce bear to gaze on the dead

“ Before decay’s effacing fingers
Have swept the lines where beauty lingers,”

and even shudder at the sight of a corpse, while yet it may be said

“ He look’d so grand when he was dead,”

picture to yourselves this dark and dismal hole—the abode of the cholera-stricken,—the resting-place for days of the cholera dead,—the eating, drinking, sleeping home of several yet not cholera-stricken wretches;—then rest in peace, or sigh over their condition, but make no effort to relieve it, if you can!

Last August four persons suffering from fever, from as many houses situated within a door or two of each other, entered one of

the metropolitan hospitals. These houses were part of a court in St. Pancras. Certain that some local cause must have either excited fever in these four people, or have promoted the spread of infection, we visited their homes; and the following are the conditions revealed:—These four houses formed part of seventeen which constituted a blind alley, open at one extremity only. A large square dust-hole occupied the centre. The houses consisted of two rooms, each on the ground-floor. The back-doors opened directly on the privies: the odour was most horrible. We felt sickened even with breathing it for a few minutes. The rooms were nine feet square, one small window in each. The sewage most defective.

Under the floor of one of the two rooms of either house, passed a drain, or rather it appeared probable a cesspool occupied that situation. Whichever it was, one of the wretched inhabitants of the room told us, that not many weeks before the filth had burst the floor. “I had but to tread,” she said, “on the boards, to see the black mud well up between the crevices; and even now,” (and our own senses bore testimony to the probability of the truth of her words), she added, “I have sometimes to rise in the night, and strive from the open window to obtain a little fresh air.” Imagine, reader, the invigorating freshness of that breeze, when we tell you, that into the dust-bin opposite to her window, the whole filth of the cesspool had been emptied the week before we visited the court. The people begged hard that something might be done to better the condition of their homes.

You who think these people are contented with their dwellings, because they are used to them, go among them, and listen to their pleadings for relief!

We will conclude this chapter with an extract from the *Medical Times* of November 17, 1849. In noticing Dr. Hector Gavin’s Sanitary Rambles, we wrote as follows:—

In the middle of August, 1849, Mr. Murray, the registrar for the Hackney-road district of Bethnal-green, made the following Report to the Registrar-General:

“The 12th, 13th, and 14th of August will long be remembered in this neighbourhood; the hurried passing and re-passing of messengers, and the wailing of relatives, filled the streets with confusion and woe, and impressed on all a deep sense of an awful

calamity. The deaths chiefly happened in a space of about 400 yards by 150.

This space includes the Nichol-streets, Half, Old, and New, Nichol's row, Turville-street, and the courts, &c., connected with them. With very great interest did we turn to Dr. Gavin's account of particular streets, to see in what sanitary condition these death-struck spots were when he visited them in his rambings. The Cholera had not then broken out. His mind could have been biassed by no prejudices. The following is the account he gives of Half Nichol-street :—"On the surface of this street were bountifully strewn all kinds of dust, dirt, refuse, and garbage. It is not cleansed more than once in three weeks or a month; and though cleansed (nominally) only last week, it was as filthy and dirty as if apparently it had not been cleansed for months. The inhabitants, in order to get rid of their refuse, solid as well as fluid, are compelled to throw it on the streets, there to putrefy and be mixed up with the mud. In consequence of the free exposure of the animal and vegetable remains, in a pasty state, to the sun, the muddy compost becomes most offensive to the smell, and a constant cause of disease and death to the inhabitants. *Invariably, wherever such filthy streets are found, so likewise are fever and the other zymotic diseases.* Loud complaints were made to me, that the only way of getting rid of the refuse was to throw it on the streets, as the dustmen would not take it away unless paid for so doing. The inhabitants of this street complained bitterly that '*the people in it never died a natural death, but were murdered by the fever.*' In the back yard of No 21, in this street, the soakage from the neighbouring privies had permeated through the wall, infiltrated them, and spread itself over the yard, when the offensive soil was covered over, and, as it were, dammed up by collections of dust, cinders, and refuse. The poor-rate collector complained of this place as a great nuisance."

In Nos. 6, 9, 12, 16, 21, and 22, of this street, eight deaths occurred during the 12th, 13th, and 14th of August. The same street of which the unfortunates who dwelt in it complained in 1848, "that its inhabitants never died a natural death, but were murdered by the fever," was the same street which formed a scene of Mr. Murray's graphic sketch in 1849.

The same house, the walls of the back yard of which Dr.

Gavin said in 1848, were infiltrated by night-soil from the neighbouring privies, and the yard itself spread over with the same, only dammed in and covered by cinders and refuse,—this same house, No. 21, was one of the earliest visited by Cholera in 1849.

Fever and Cholera, Cholera and fever, are the alternating visitors of these unhappy abodes.

In Nichol's-row, Dr. Gavin says :

"A cellar here serves for a dust-bin and a privy."

Of Turville-street :

"Eight houses are without any supply of water. One privy is common to seven houses. They are *all* nasty, and *horribly offensive*."

Of Shepherd's-court :

"Excessively dirty and foul. The privies are confined and dirty. Excrements are scattered abroad."

The other streets above referred to appear to have been in a similar sanitary condition.

During the progress of the Cholera, death, induced by that disease, entered two-thirds of the houses in Half Nichol-street; more than half the houses in Turville-street; nearly half those in New Nichol-street; and more than a third of those in Old Nichol-street. "The moral bearings of the question are," says Dr. Gavin, "too vast to enter on."

Yet, with such facts as these before them, men proceed to the temple of an omniscient God, and, on bended knees, supplicate *Him* to remove the pestilence from among them, while *they* leave untouched those second causes, which their own intelligence, His gift, His voice, teaches them must inevitably re-produce the malady. Do they expect a miracle, that the contributions of the wealthy may be spared?

Now, as then, mankind need to apply the fable so admirably told by the enchanting and amiable La Fontaine, which we have ventured to "do" into English :

"AIDE TOI, LE CIEL T'AIDERA."

A wagon, piled high up with hay,
 Stuck in a muddy road one day:
 The driver raised to Heaven his eyes,
 And knowing that his anxious cries
 By mortal ears could not be heard,
 To Hercules his suit prefer'd.

" Oh, Hercules !"—he trembling said—
 " Lend to a wretched man thine aid !
 If it be true that once thy back
 Sustain'd the world and did not crack,
 Place 'gainst my cart thy little finger,
 And in the mud we shall not linger."
 He ceased ; and, answering his prayer,
 A gentle whisper stir'd the air.
 " Too soon," a voice spoke in the breeze,
 " Thou claimst the aid of Hercules :
 He wills that man shall do his best,
 And then he comes and does the rest.
 Look well about thee—see the cause
 Which stays thy wagon. Nature's laws
 Are simple in their working—feel
 What mud encumbers every wheel—
 Clear it away—now break that stone—
 Fill up that ugly rut. Hast done ?"
 " All I have done," the driver said.
 " Now," said the voice, " expect my aid.
 Take up the whip." " The whip I 've found,
 But, bless me ! now the wheels go round.
 Hercules, thanks !" The voice replied—
 " Let this truth in thy heart abide :
*To those who help themselves 'tis given
 Alone to hope for help from Heaven !*"

In conclusion, if doubt yet lingers in the mind of any man as to the relation between defective sanitary regulations and the spread of epidemic diseases, we would urge him to make, from the Registrar-General's Weekly Returns, street lists of the mortality from Cholera in Bethnal-green, and then to compare those lists with Dr. Gavin's account of the particular streets in the same parish. We will answer, from experience, that he must rise from his task,—what Dr. Gavin strives to make every man,—an ardent sanitary reformer, convinced that he has no child's play, but God's work to perform.

CHAPTER V.

Appearance of the Cholera in England—State of the metropolis and other cities—Sanitary measures.

THE country had scarcely recovered, or rather was still suffering from influenza and catarrhal affections, which had proved very fatal, when the tocsin of alarm was sounded that a heavier calamity—a more inexorable plague was approaching our domestic threshold. Alarmed by the recollection of its ravages in the year 1832, the inhabitants of the metropolis and different towns throughout the kingdom convened meetings to discuss what precautionary or preventive measures it would be expedient to adopt, and what sanitary regulations could be devised for the protection of the public health. The movement was general, and the attention of the Government at this crisis was necessarily awakened to the impending visitation.

It becomes, then, a prime necessity, before entering upon the course of an epidemic, to notice particularly the conditions existing at the time or before its outbreak, and to endeavour to ascertain in how far a connexion may be traced between them. To this we now proceed.

In 1847, a Commission was appointed, by Writ of Privy-Seal, to inquire “whether any and what special means may be requisite for the improvement of the health of the metropolis, with reference, more particularly, to the house, street, and land drainage, street-cleansing, and paving; the collection and removal of soil and refuse, and the better supply of water for domestic use, for flushing sewers and drains, and cleansing streets; and also as to

the best means of using existing works, and of erecting new works requisite, and of maintaining them in good action; and also as to the most equitable provisions for regulating the charges, or assessing, collecting, and paying the monies requisite for such purposes, more especially in the districts chiefly inhabited by the poorer classes of the population."

The Commission being duly appointed, derived its information from the most authentic and unexceptionable sources—examining men well known to have had great experience in the treatment of the disease, and who were well acquainted with the causes that aggravate its intensity; besides which, they obtained from the best informed local authorities an exact account of the physical condition of different districts of the city in respect to ventilation, cleanliness, the state of sewage, &c. From the evidence thus obtained, it was ascertained that when the Cholera broke out in 1832, the labouring population in East Smithfield, where the disease first appeared, was in a wretched condition. The streets were described to be neglected and polluted with stagnant pools of putrid water and decaying vegetable and animal matter. The houses were over-crowded, ill-ventilated, and in a filthy condition. From this hot-bed of pestilence the disease spread along the sides of the river Thames down to Limehouse, and across to Rotherhithe and Bermondsey. Here all the auxiliary causes which favour the development and extension of disease were in active operation; added to which, the poorer classes were exposed to the depressing influences of poor diet, scanty clothing, exposure to the vicissitudes of the weather, and the fear naturally produced by hearing that death was busy in almost every house around them.* It was contended, and that on very good grounds, that the poorer classes of the people would cheerfully hail and assist the authorities in carrying out any measure that might meliorate their condition. Hence arose the question as to the policy of establishing Cholera hospitals, which, on account of concentrating and perhaps giving intensity to the supposed contagious nature of the disease, was strenuously opposed. Hence, also, the proposition of adopting model lodging-houses, such as that in Glasshouse-yard, for the reception of inmates, who should be protected from the invasion of epidemic diseases generally by a proper system of ventila-

* Evidence of Robert Bowie, Esq., Surgeon.

tion, cleanliness, and pure water. It was, indeed, shown that while fever in this district had raged to a great extent in Glasshouse-street, and its adjacent courts and alleys, the inhabitants of the Model Lodging-house had escaped being attacked.

The only deaths that occurred among the lodgers were two children, labouring under hydrocephalus internus when admitted, and an aged and mutilated seaman, who had long been suffering from hydrothorax and disease of the heart.

In Southwark, and its densely populated neighbourhood, the majority of those who were attacked by the Cholera in 1832, were occupants of Kent-street, the Mint, and other courts and alleys in the parish. These persons are described to have been filthy in their habits, and from living in confined and impure air, were in a state of susceptibility to be affected by any miasma or contagious matter floating in the atmosphere; there were many vagrants and mendicants who inhabited the low lodging-houses, where they slept for a penny or twopence per night, in a wretchedly destitute condition. Many of their habitations had not even cesspools; the soil was oozing from the corners and through the pavement of the courts; and where there were cesspools they were in very bad condition—seldom or ever emptied. The supply of water was also very deficient. The pavements of the courts and about the houses were nearly all broken up; and, within these dens of pestilence, there was no boarding to the floors, and the inmates slept on the earth, or sometimes on a few shavings. In 1847 the condition of this district was a little improved, but not much; in some courts, as in the Three Tuns-court, in White-street, in which there are about fifteen houses, and probably 150 inhabitants, principally Irish, these evils were even augmented. Here there was but one privy, and that without covering—the fluid soil running down the court in front of all the houses. Here also they had no water but what they could beg from the neighbours. Several of the houses were entirely without windows, or boarding on the floors. The proprietor of the court was in prison for debt, and the people crowded there because they had to pay no rent. No person was responsible for them, nor was there any law to enforce proper sanitary measures. The Court Leet, the Commissioners, the Magistrates, and the Commissioners of the Borough Pavements were, it is true, applied to; but there was no law to compel them to put the place

in a condition fitting for human habitation. Other courts, where the inhabitants paid rent, were in a condition almost equally deplorable. "In such places, typhus, it was proved, had, at various periods, been very fatal; and it was to be anticipated that Cholera would assume a very malignant aspect in this locality should it again visit the country. In regard to drainage, supply of water, and ventilation, which so notoriously diminished the susceptibility to epidemic diseases, no material improvement of any kind had taken place, and the district in 1847 remained in the same wretched state. The fault, however, rested not, be it observed, with the people. They had no means to procure water, and the little they could obtain was not got without very great labour. The women were obliged to carry it up stairs, and were, consequently, very sparing in the use of it; and those stairs being common to all the families in the house, no one considering it her duty to clean them, were always in a filthy state. Even the water for drinking, and other domestic purposes, had an offensive odour, from having absorbed the foul air of the room; though, indeed, water for drinking, or even washing the hands, could seldom be procured. It was also very common to find the clothes which had been washed in filthy water hung up to dry in the room,—the evaporation from which must obviously have been most pernicious; and in the room in which the air was thus poisoned, there were often two or three children ill in bed, or even a greater number, or perhaps the father or mother themselves smitten with typhus fever. In this district these miserable houses were badly drained; they had mostly cesspools, very few of which communicated with sewers; but the most depressing influence upon the health arose from the number of open sewers which surrounded and intersected the district. These ditches and sewers were sluggish, and evolved noxious gases, and hence typhus fever was always prevalent in the vicinity."*

In Rotherhithe, the same deplorable condition existed; the houses were badly drained, badly supplied with water, and an open ditch received the contents of all the privies. Here there was a block of houses where the privies hung over the ditch, and the paths in the fronts of the houses were all unpaved and filthy. The district was excessively ill-drained and intersected with ditches and

* Evidence of R. L. Hooper, Esq., Surgeon, London-road, Southwark.

stagnant water. Since the Cholera visited it in 1832, a few of the sewers had been arched over, and some new ones constructed. In some parts water also had been laid on ; but most of the dwellings were wretched hovels. Many of the places in this district being below high-water mark, the houses were subject to inundations from these sewers wherever the Thames overflowed. Hence the neighbourhood was always more or less unhealthy, and the medical practitioners found that for a considerable period after such inundations, catarrhal and rheumatic affections prevailed to a great extent.

In Lambeth matters were no better. Here the Cholera, in 1832, principally prevailed in low marshy situations, in crowded, ill-ventilated courts and alleys. The drainage in the streets, courts, and alleys where the disease was rife, was extremely bad ; the privies were very often in the cellars ; and stagnant pools of water, sometimes two feet deep, were decomposing before the houses, to enter which the inmates were obliged to walk along planks, placed before the doorways. At the time of high tide, in Fore-street, the dwellings were blocked up with boards and plaister, to prevent the water from getting into them. This wretched state was not amended in 1847 ;—even then cesspools were very general in the district, the soil from them frequently swimming about in the water. The houses were generally damp and dirty, and it was impossible for the inhabitants, under such circumstances, to keep them dry and clean. There were several courts and streets in Lambeth-walk, some from Vauxhall-gardens, and other places, where fever constantly prevailed, and in these localities Cholera chiefly raged. The condition of the district had been little improved since the last visitation of Cholera, although additional common-sewers had been made ; but in very few instances, indeed, had the houses been supplied with drains into them. Even large houses had no drains into the sewers,—nothing but cesspools ; water-closets were very rare even in the better class of houses ; while as to the streets, courts, and alleys, in which the poor live, they were unimproved, and, indeed, had become more crowded since 1832. In some respects, matters were even worse, for the quantity of decomposing animal and vegetable matter about them was greater. Additional sewers had certainly been made, but there still existed great numbers of courts and alleys in which there were no drains, and fever of a typhoid character existed in those places

to a great extent. There might be more sewers it was true, but the supply of water was not increased in proportion to their enlargement, and the sewers, therefore, could only act as extended cesspools.*

It was chiefly in the filthy dens in these close courts and alleys that Cholera raged in 1832; and these localities, it was further demonstrated, had, since then, been very little amended. In 1847 the houses were not sufficiently supplied with water. Here and there, there was a plug in the middle of the street, from which the poor people carried water. The effluvia given off from gully grates was offensive, and the sanitary condition of the population generally was not, in the least degree, improved.†

Proceeding from these districts to that of St. Giles', Bloomsbury, we find that the localities in which typhus, influenza, and scarlet fever, assumed a putrid type, were in Buckeridge-street, Bainbridge-street, Lawrence-street, and Church-street, where not one of the houses had a sewer, or even a common drain. All had cellars inhabited, and every room occupied by different families. The filth and dirt before the doors was dreadful, and the stench overpowering.

We now come to another and most important species of evidence, viz., as to how the improvement of localities, by pulling down nests of old houses, and forming large main streets affect public health. In this densely inhabited district, all the houses, except Church-street, and part of Lawrence-street, were pulled down and replaced by New Oxford-street. Church-street remained in the same state of horrible filth, indeed rather worse, from overcrowding consequent upon removal of other streets; still these alterations have unquestionably improved the general health of the neighbourhood, inasmuch as admission is now given to currents of pure air from above; but so long as these localities remain without sewers, and the present sewers remain as they are, no sufficient or permanent improvement will have been effected. When the wind blows in certain directions, the stench is thrown back through the privies and water-closets, and, the supply of water being limited, accumulations take place, particularly in

* Evidence of F. Wagstaffe, Esq., Police District and Parochial Surgeon in Southwark, Bermondsey, and Lambeth.

† Evidence of T. R. Leadham, Esq., Surgeon to the Poor-law Union of St. Olave's, Southwark.

the months of July and August, beneath the kitchen, which taint meat, and infect the atmosphere. The private houses of tradesmen and shopkeepers in this district are very little better than those in Church-street. However, wholesome diet, clothing, and fuel, along with better ventilation, and more light, are improvements which have already caused typhus to assume a less malignant type, but more pulmonary diseases and scrofulous affections prevail; and the number of children with deformed legs and spines is incredible. The general effect of the alterations which have been made in Bloomsbury amounts to this, that the population of the neighbourhood has been diminished by about five thousand individuals, and, consequently, this locality has been improved at the expense of other parts of London. The people thus turned adrift congregated in the little back-streets leading to Drury-lane; some migrated to Saffron-hill; some to St. Luke's; some to Whitechapel; but more to St. Marylebone and St. Pancras than to other districts; hence these parishes, which before were bad enough, are now intolerable, especially as there has been a large influx of Irish emigrants, during the last two years, among them.*

In the parish of Christchurch, and the neighbourhood of Broadwall, where there were open sewers, and at Brunswick-place, the Cholera, in 1832, was unusually severe; in one row of houses, within two yards of one of the sewers, in houses which were very miserable as regards size, ventilation, and means of cleanliness, the mortality was excessive,—as many as five died in one house, and that place still remained, in 1847, without amendment. Hence it was clearly proved, that when certain atmospheric conditions prevail, and typhus arises, it is always found to be very malignant in these districts, and the result extremely fatal. The people living in this district are described to be sickly and miserable, the children poor and dwindling. The great defect of the district is described to have been, very obviously, the state of the sewers and the house drains. “When we visit the houses of the lower classes,” observed one of the witnesses before the Commission in these districts, “we are met, or, as the expression is, almost ‘knocked down’ by offensive smells. On inquiring, we find that there is some house-drain stopped up, some cesspool deranged, or the cellar flooded. The lower offices of the houses in the neighbourhood of Holland-street

* Evidence of William Simpson, Esq., Surgeon, Bloomsbury.

and the water-side are subject to periodical floodings, and that with very filthy water. In the district of St. Saviour's the circumstances are such as to account for the mortality."*

In the district of Bethnal Green,† it was shown that cleansing was exceedingly neglected, and that caused, in the first instance, by a great want of water, and by a deficiency of drainage. Down the Bethnal Green-road, which is tolerably flat, there was no sewer for a distance of three-quarters of a mile in extent, on either side. This want of sewage was represented to the Commissioners four years before; but the evil still remained. Hence many diseases abounded in this neighbourhood which would not have occurred had the places been properly drained—in fact, some few parts which had been rendered less humid, and where the filth had been carried off, had improved in health. Here, also, cess-pools were found to be very common, and frequently placed close to houses—nay, in some instances, under them. Moreover, it was added, that carrying water to the houses of the weavers and poor of Bethnal-green would not even be of much service to them, inasmuch as they have no means of getting rid of it when used. Owing to all this uncleanness, and the impossibility of keeping the houses sufficiently ventilated and clean, there can be no question that the poorer classes are driven to public-houses, where they find themselves more comfortable. Hence we may discover a cause, also, of moral degradation, deeply affecting the well-being of the poorer population. Here we may direct attention to the following interesting Table, showing the number of persons sleeping in one room, its dimensions, and the times when *death* would take place, provided there were no ventilation. The document was drawn up, we may observe, with great care and accuracy, by Mr. Taylor:—
“ Little Collingwood-street, Bethnal-green, is divided into two portions; one contains twenty houses; the other, twenty-two, a little smaller than the former. Four of the houses in the first division are wholly without water, and their inhabitants have to beg it of their neighbours, *who, in supplying it, subject themselves to a penalty of, I believe, 5l.*”

* Evidence of Edward Doubleday, Esq., Surgeon, St. Saviour's.

† BETHNAL GREEN.—No. 2 District.—Bounded on the eastern side by the Cambridge-road, upon the southern by Elizabeth-place, Collingwood-street, Wellington-street, North street West-street, part of Tent-street, up into Bethnal-green-road, Hart's lane, and on the northern side of the road, about on a line with Hart's-lane.

No. of House.	Height of Room.		Length of Room.		Breadth of Room.		No. of Persons.	Death produced in *	
	ft.	in.	ft.	in.	ft.	in.		h.	m.
1	7	9	9	11	9	5	8	6	47
2							6	9	2
3							4	13	34
4							2	27	7
5 empty							—	—	—
6							6	9	2
7							5	10	51
8							6	9	2
9							2	27	7
—							7	7	45
11							3	18	5
—							6	9	2
13							5	10	51
14							6	9	2
15							2	27	7
16							6	9	2
17							4	13	34
18							2	27	7
19							7	7	45
20							5	10	51
21									
22									

All the evils we have now enumerated were, in Westminster, St. Giles', Lambeth, and other districts, greatly aggravated by a new element of mischief; viz., the influx of Irish emigrants into neighbourhoods already overburdened with their own poor. The indolent, careless, and filthy habits of this lower order of Irish were quite sufficient to produce fever, whatever may have been their previous condition, they having no notion of ventilation, no care for personal cleanliness, never thinking of water, nor caring what they lie down upon—huddling together night after night. The lower parts of Westminster, already densely crowded, now became much more so, by the people driven in from St. Giles', and the other neighbourhoods where the old houses had been pulled down to make clearances for the improvements. In such neighbourhoods as these, it is very evident Cholera was to be expected in its most aggravated and malignant form.

Among some supplementary evidence which was laid before the

* Evidence of Thomas Tayler, Esq., Surgeon, Bethnal-green. In calculating this column, the following data have been used; namely,—that each respiration is 40 cubic inches (Menzies), the respirations 20 per minute (Haller), and that the existence of '08ths of carbonic acid gas is destructive (Liebig.)

Commission, the remarkable fact was shown, that Birmingham enjoyed an immunity from the Cholera, whilst Bilston, only ten miles distant, was ravaged by it. This was principally accounted for by the natural drainage of Birmingham being very good, owing to the elevation of the town (450 feet, or thereabouts, above the level of the sea); and having therefore, it may be said, a better drainage than towns generally.

The state of Westminster was particularly deplorable. Here both drains and sewers were very badly regulated in almost all the streets, particularly in Crown-street, Charles-street, Gardener's-lane, and Princes-street. The noxious effluvia arising from these streets are of so pernicious a character, that some of the families who resided in Cannon-row during four or five years, were scarcely ever free from the deleterious effects of a tainted atmosphere. Adults and children alike were constantly suffering from typhoid affections, sore throats, or low fevers, until they removed to healthier places. In these localities it was predicted that Cholera would rage, and become malignant. Indeed, these situations were seldom or ever free from scarlet fever, small-pox, and measles, which frequently assumed a typhoid character.*

The concurrent testimony of all the medical men who practised in these districts being thus far conclusive, it next becomes a matter of interest, in tracing the History of the Cholera, to ascertain how far the appointed public authorities discharged their duties, in endeavouring to improve the sanitary condition of the metropolis. It was one of the objects of the Metropolitan Commission to ascertain the extent to which the sewage might be improved: the authorities who were officially and scientifically acquainted with the subject, in all its details, were duly examined. Of their evidence we shall give the following brief abstract, retaining, as far as we can, the *ipsissima verba* of the several witnesses.

Mr. Hertslet, the chief clerk to the Court of Sewers for Westminster and part of Middlesex, on being asked as to the extent of the works for the houses, streets, and main drainage which remained uncompleted in his district, and as to whether any plans were in existence on which he could rely for making an accurate return of the number of streets within the district which had sewers in them, replied: "We have such plans, but our new surveyor in-

* Evidence of N. M'Cann, Esq., Surgeon, Parliament street.

forms me constantly of inaccuracies in them. We have not a complete section of more than one or two of our main lines of sewers, while we have about twenty in our active jurisdiction. There must be hundreds of courts and mews of which we have no plans and sections." His evidence then proceeded to show that what sections and scales they did possess had been made generally without reference to any fixed datum-line, and, as a consequence of this, they could not proceed with their works with any certainty. Speaking of the complaints made by tenants of insufficient drainage, he observed that the greater part of the complaints received on the subject did not come from the poorer districts, as the poor were used to the want of drainage; and never having, until recently, heard of the possibility of its being improved they bore their lot most patiently, and seldom made any serious grievance respecting it,—except, perhaps, that they objected to the collection of the rates. The complainants were, for the most part, of another class:—residents in Bryanstone-square, Montague-square, Norfolk-street, Park-lane, Upper Brook-street, and others in some of the principal main streets. Mr. Hertslet next attested as to the inconvenience and positive damage suffered by the public by the division of districts for paving and sewage purposes, having the effect of creating various bodies, and separating the paving and cleansing of the streets from the works of the sewers and other means of surface-draining; besides which, the most frequent difficulties were found to arise from the petty jealousies of the officers acting under the different authorities, and sometimes even the disagreements between the boards themselves. It appeared that there were in St. Pancras alone, from fifteen to twenty paving boards, and nearly 1000 commissioners. One of these boards alone spent about 1000*l.* a year for management, exclusive of works. The consequent waste in every way, therefore, from want of consolidation, was, he felt assured, enormous; nay, he was convinced that in three or four months, the wretchedly-drained city of Westminster might be placed in such a state of forwardness as not only vastly to improve the health of the population, but also permanently to increase the value of property.

It was then proved that among the Commissioners of Sewers were men personally interested as architects, builders, agents, &c.; that although there was a clause in the act prohibiting com-

missioners who were interested from voting under a heavy penalty, yet that the penal clause having been struck out by the Court of Sewers before the Act went before Parliament, some of the commissioners had so voted in defiance of the clause. That there had been some of the members remaining and acting on the Commission who had been insolvent traders and outlaws, and some on the Committee of Accounts who had also been bankrupts. That among a certain class of the commissioners, private rather than public interest appeared generally to be consulted;—that very few of the commissioners ever met, and then only to put down their names as having attended;—that on a question of a proposed improvement in the form of sewers, out of 140 commissioners who were summoned, only 21 voted;—that on “dinner days” the attendance was more numerous and continuous, and of quite a different complexion;—that the pertinacious resistance offered by a certain class of architects to recent improvements, and the extraordinary objections taken by some of them, were convincing proofs that drainage was a subject to which they had not attended;—that surveyor’s reports, when they interfered with the private interests of a particular commissioner were repeatedly altered, to the detriment of the public. In addition to all these flagrant abuses, it was elicited that the chairman was in the habit of altering the surveyor’s reports. “But did not the officer remonstrate?” the witness was further asked; and he replied, “He had been accustomed to it for so many years, that he thought nothing of it; but the impropriety of his recommending what he did not approve being pointed out to him, he at length summoned up resolution to omit sending his report to the chairman.” As the result of this course, the chairman obtained an order at the next court, that both the clerk and surveyor should submit all reports to him in future.

These facts need no comment; the following however deserves attention:—A short time since, it was found that a large district had been described on the plans as being in one division, whereas, it was really in another, and had of course been rated accordingly. When this was clearly ascertained, the officer who had laid down the line of demarcation admitted that he knew it was so, but a late chairman had so ordered it. “Then,” said Mr. Hertslet, “you have for many years, and on oath, misled the presentment juries.” He replied, “Yes, *but there was an order of court for it.*”

Upon inquiry being made what improvements had taken place in the sewage since the occurrence of Cholera in 1832, it appeared that some two or three lines of sewers had been built, but very few houses were connected with them; nay, the old drains were as bad as ever, and the system of pumping the sullage water into the gutters still continued, especially around Buckingham Palace. Many of the inhabitants in Dartmouth-street, Westminster, and near Buckingham Palace, were in the habit of pumping out their sewage water at night into the streets. Nay, the public are scarcely aware of the fact, that many of the very best portions of the West End are literally honeycombed with cesspools. Many houses have from three to six or seven under them. According to the statement of the Hon. Frederick Byng, there are constantly 2,500,000 cubic feet of decomposing refuse retained in the sewers and drains. There is scarcely any difference between the noxious effects of such sewers and cesspools; indeed, the exposed surface of the latter being greater, the annoyance is complete.

Mr. J. Phillips, C.E., Chief Surveyor to the Westminster Court of Sewers, corroborated the previous witness on many of the above points, and added other instances of mismanagement and abuse as reprehensible. His evidence, indeed, exhibits the pertinacious objections of the Commissioners of Sewers to the improvements which were suggested, whenever such improvements would lower the price to the public, although they might tend to secure greater efficiency. He stated: "It had previously been a matter of routine for years, that the clerks of the works should inspect the whole of the sewers monthly, in their respective districts, and report accordingly. I had followed the usual course for several months, but as I proceeded with my inspections of the sewers, I began to perceive that I was signing my name to a deliberate falsehood." On this account, Mr. Phillips, on the 3rd of October, 1845, wrote the following:—

"Sewers Office for Westminster, &c.,

"No. 1, Greek-street, Soho-square, 3rd October, 1845.

"In obedience to the order of Court (as expressed in bye law No. 60), namely, 'that each clerk of the works do endeavour to obtain every information on the state of the sewers within the district placed under his superintendence,' and 'that in the course of every month he inspect the whole of his district and report his having so done, together with his remarks and

observations in the Book of Informations, in addition to such entries as have been usually made therein;’ therefore I beg most respectfully to state that there are a vast number of sewers under my superintendence that are similar to elongated cesspools; that is, they retain nearly all the sewage matter that is discharged into them, instead of affording efficient means for speedily carrying it off; and the stench and effluvia evolved from the decomposing filth thus accumulated escape through the untrapped gullies and drains, and contaminate the surrounding atmosphere with their nauseous and deleterious gases, to the great injury of the health of the public; consequently they should not only be cleansed forthwith, but some ready and effectual means should be adopted in order to prevent the matter discharged into them afterwards from becoming deposited upon their bottoms.

“ (Signed)

JOHN PHILLIPS, Clerk of the Works.”

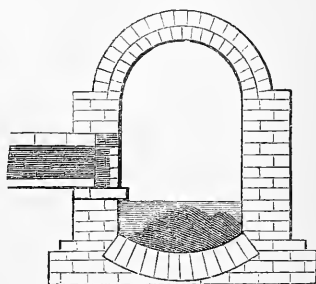
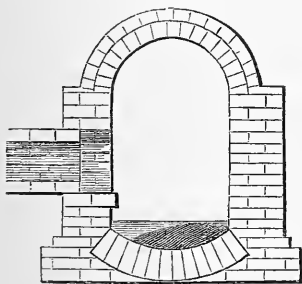
Mr. Phillips then continues with the evidence before the Commission, and remarks,—

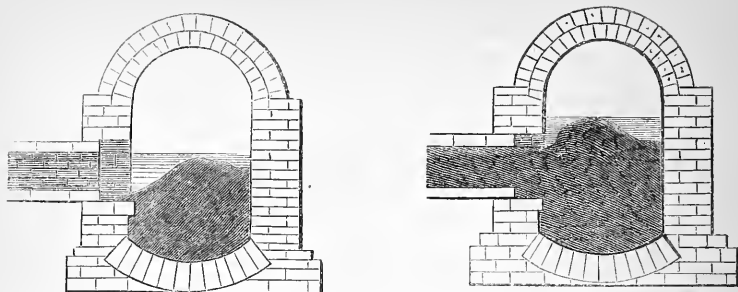
“ I asked the other clerks of the works to sign that report with me; but they refused, though they did not, nor could they, deny the truth of what I had written. But I believe they abstained principally from fear.

“ Q. Fear! of whom?—A. Of some of the most active of the Commissioners.

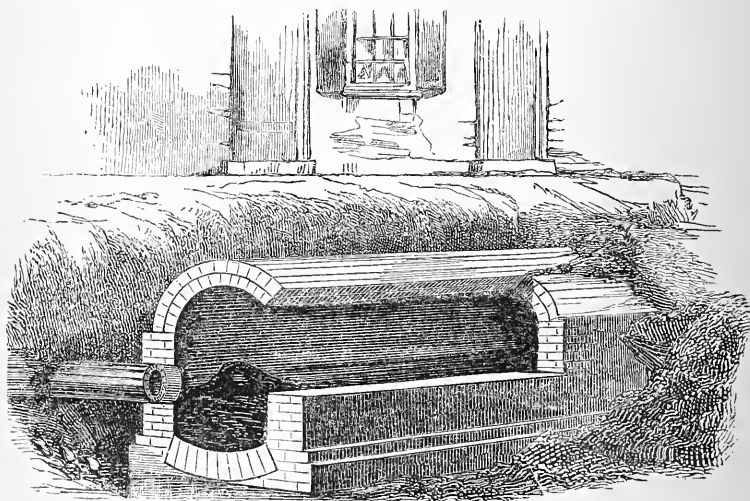
“ Q. Of some who are now Commissioners?—A. Yes; particularly of one individual, from whom I then experienced, and have continued to experience, much bitterness of feeling and opposition ever since I made that entry.”

The condition of the sewage in about one hundred and thirty streets which the witness examined will be seen by the following cuts, exhibiting as a dark mass, the accumulations which were choking up the sewers, thus preventing drainage and eliminating noxious vapours:



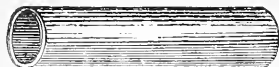


The remaining evidence of this witness bears chiefly on scientific details, at the same time that it clearly proves how much expenditure in public works may be economised without detriment to the public interest. On this point an instance is given where an immense sewer had been constructed without the least advantage to the neighbouring buildings. The following shows the size of the sewer and the condition in which it was found ; giving an instance of the effect of a run of water in a small sewer, and of the common operation of a large sewer without a constant and a sufficient supply of water. The woodcut represents a sewer constructed in Langley-court, Long-acre, with the obstruction at the outlet of the smaller sewer :



Mr. Phillips was then asked, according to his experience, what

form or size would be sufficient for the drainage of the above court? The following sketch represents that which he would have recommended as sufficient for all useful purposes:



Captain Bague, R.N., as Chairman of the Westminster Court of Sewers, having had his attention called to the evidence, a summary of which is given above, stated to the Commission: "I am quite aware that the evidence which Mr. Phillips and our clerk have given may cause pain to some of the Commissioners, but, as I observed before, I think both the clerk and the surveyor have given their evidence in such a straightforward way that there can be only one opinion upon the subject of it, namely, that it will be for the public good, and for the benefit of the public service."

We must, before bringing this part of our subject to a conclusion, refer also to the examination of Mr. G. Wilson, Secretary of the Board of Health for the parish of St. Margaret and St. John, Westminster, at the time of the Cholera in 1832. He also had visited the district, and being asked how far he considered the condition of the labouring population altered or improved in respect to drainage and sewage-water, replied: "With respect to the greater proportion of the parish, I believe it is exactly as it was; from Palace-street, down York-street and Tothill-street, with the streets branching out right and left therefrom, there was and there is, nothing but a surface drainage. The basements of the houses lie several feet below that surface drainage, and in order to get rid of the offensive liquids, the inhabitants of the houses pump it from the basements into the streets. In many cases, the pumps draw up the matter from the cesspools into the street, and there it lies until the godsend of a shower clears it away. We feel for the people, because they cannot inhabit the basement floors, unless they do this. And this is the condition of a street close to the palace, among the occupants of a property which belongs to the Crown." Being asked what was the condition of the wells in Westminster, he says: "*Really it would be well not to think about that, or we should deteriorate the property of the district!*"

We shall next proceed—upon the principle of adhering strictly

to the *facts* elicited by these examinations—to the Report itself of the Sanitary Commission, which presents us with a variety of details throwing considerable light on the history and the progress of this disease :

“ We now beg leave to submit the summary of our conclusions in this our first report.

“ Having consulted in relation to the rise and spread of Cholera, the experience obtained in the most severely-visited districts in the metropolis, and also the most authentic records of the experience in the principal towns in Great Britain and in Europe, we find, in relation to this disease :—that amidst the town populations the Cholera visits with more severity the same classes of persons and the same places, and is governed nearly by the same circumstances as typhus.

“ That it has been proved by experience that those circumstances are generally removable by proper sanitary arrangements, and that typhus is, to a great extent, preventible; and we have every reason to believe that the spread of Cholera is preventible by the like means, namely, by general and combined sanitary arrangements.

“ That these arrangements, instead of being incidental and collateral to other measures, are paramount, and principal, and effective,—not only against Cholera, but also against other epidemics.

“ That when Cholera first appeared in this country, the general belief was that the disease spreads principally, if not entirely, by communication of the infected with the healthy, and that, therefore, the main security of nations, cities, and individuals, consists in the isolation of the infected from the uninfected,—a doctrine which naturally led to the enforcement of rigorous quarantine regulations; the establishment of military and police *cordons*; the excitement of panic; and the neglect, and often the abandonment of the sick, even by relations and friends.

“ That since opportunities have been obtained of a closer observation of the character of this disease, and of the mode in which it spreads through continents, nations, cities, towns, and families, facts have been ascertained which are incompatible with the foregoing view of its mode of dissemination, and of its prevention.

“ That the disease is not, as it was generally supposed to be, contagious; and that the practical application of that doctrine did no good, but was fraught with much evil.

“ That when it previously visited this country, it was believed that the most powerful predisposition to this disease is induced by improper or deficient food, and that, for this reason, its chief victims are found among the poor; but it is now universally admitted that a far more powerful predisponent is the habitual respiration of an impure atmosphere; that the highest degree of susceptibility is produced where both these conditions are combined; that is, where people live irregularly, or, on unsuitable diet, and at the same time filthily.”

The attention of Parliament having thus been called to the urgent and immediate necessity of introducing some measure for the better preservation of the public health, on the 4th of August, 1848, Lord Morpeth moved and obtained leave to bring in a Bill to renew and amend the Act 9 and 10 Vict., cap. 96, for the removal of nuisances, and *prevention of contagious diseases*; and at the same time, Mr. Labouchere brought in a Bill to prevent contagious disorders among sheep and cattle. The "Public Health Bill" had previously passed through its preliminary stages in both Houses; and having received several amendments in the House of Lords, came down to the Commons on the 7th of August, for the House to declare its assent, or otherwise, to their Lordships' amendments. The debate on this matter was characteristic; and one could hardly suppose that a grave body of imperial legislators were considering a measure which was about to take an important place in a crisis so terrible as that of a ravaging pestilence. We subjoin a succinct and curious specimen of hygienic legislation:

"Lord MORPETH moved that the House should consider in committee the Lords' amendments on the Public Health Bill, and the House immediately resolved itself into the proposed committee. Several of the amendments were agreed to, and some others dissented from; and it was determined to ask a conference with the Lords on the points upon which the two Houses differed.

"Lord MORPETH moved that clause 61, called the Smoke Clause, which had been introduced by the Lords, should be agreed to. The necessity for such a clause was generally admitted; but, of course, reservations would be made in favour of particular trades, to which the machinery requisite for the prevention of smoke might not be applicable.

"Mr. FORSTER objected to the clause being adopted, as one which would lead to much inconvenience and injustice.

"Mr. BRIGHT had opposed every Smoke Bill that had been introduced to that House, and he thought this clause contained all the absurdities of all the former measures put together. It would only tend to turn into ridicule the legislation of that House, as it was quite impossible to work out any Smoke Bill; for example, the kind of smoke to be put down was 'opaque smoke,' and it was to be considered opaque when it was not transparent. But did not every body see that the opacity of smoke coming out of a chimney would, by this description of it, depend very much upon whether there was a black or white cloud behind it? By the clause, opaque smoke was only permitted during a certain time, which was allowed for putting on fires; but this would be found utterly unworkable. Sometimes the smoke of ten or twelve smithies adjoining each other were sent out by one common chimney. The fires of these smithies were renewed several times an hour, and how, then, was it possible

to enforce an Act in such cases? In point of fact, the clause was ridiculous; and it would be impossible to carry it out. Parties producing smoke were to provide a 'well-approved plan' for consuming it; but who was to decide what the well-approved plan was? In Lancashire, no three men were ever found to agree upon any effectual plan for preventing smoke.

"The ATTORNEY-GENERAL said, the question was certainly beset with difficulties, and he must admit that the clause contained inconsistencies which it would not be easy to reconcile: if his noble friend took his advice, he would not press the clause upon the House.

"Mr. MACKINNON supported the clause.

"Mr. HENRY DRUMMOND thought the honourable gentleman ought to weigh well the meaning of the word 'nuisance;' for the question might be raised whether black smoke was prejudicial to health. The only justification for such a clause as this was, that smoke had an effect on the public health. That House, on legislating, ought always to be very chary of entering on scientific subjects; they ought not to forget the lesson their experience had read to them in the matter of the excise on malt. The more he had seen of this Bill, the more he was satisfied that there was a great deal of quackery and weak philosophy in such questions, and that this clause was manufactured by a quack; it ought not too hastily to be presumed, that what were called nuisances were necessarily injurious to health. All persons connected with butchers and knackers were known to be more free from disease than any other trades whatever; and it was a fact, which was also well known, that every trade had a class of diseases peculiar to itself.

"Mr. P. HOWARD did not think it possible to apply the clause to any manufacturing town.

"Lord MORPETH was aware his honourable friend (Mr. P. Howard) represented the highest chimney in England. When he had been told on authority, he could not fail to expect that this clause should not work, he hardly should think it worth while to incur the odium which, rightly or wrongly, seemed to attach to its adoption. He held himself perfectly free, and, perhaps, bound to be a party to the introduction or furtherance of a Bill having the abatement of that nuisance for its specific object.

"Mr. EWART would remind the House that, as appeared from the evidence of Mr. Faraday, even if the opaque smoke were destroyed, gases would remain, which would be highly injurious.

"The Lords' amendment was then rejected.

"On Clause 83, to which the Lords had added a proviso, 'that nothing herein contained shall prejudice or affect the right of interment in any family-vault or burying-ground.'

"Mr. HEALEY thought if interment in churches and vaults was injurious to health, it ought to be prohibited altogether.

"Lord MORPETH observed, that the proviso had no doubt been inserted from tenderness to family feelings.

"Mr. HUME hoped the House would disagree to the amendment.

"The ATTORNEY-GENERAL was of opinion that the proviso was contrary to the principle of the Bill.

"Mr. MACKINNON hoped the noble Lord would allow the proviso to be struck out.

"Colonel SIETHORPE asked if they should deny families who had family vaults the right of using those vaults. Would the honourable member for Lymington like to give up his family vault? Those who did so might be buried in the highway. He could not, as the noble Lord seemed disposed to do, treat with indifference and contempt the noble family of Carlisle. This was only a specimen of the changes now going on; and he should not be surprised some day or other to see a cad, a respectable man in his station, sitting cheek-by-jowl with the noble Lord on the Treasury bench.

"Mr. MACKINNON would confess that at first sight it seemed hard to deprive people of their places of burial. But interments in towns were most prejudicial to public health; and sooner than that any one should be injured by those noxious vapours which rose in churches from coffins even soldered up in lead, he would be buried in the highway instead of his family vault.

"Colonel SIETHORPE said, so also would he, supposing that any noxious vapours were likely to proceed from himself.—(Laughter.) The subject was too serious a one for a joke. He could not help telling his honourable friend, with all respect, that his argument was most absurd and foolish. Why, he would ask, had he never thought of it before? For himself, in the words of Ruth, he would only say, 'Where my father lies there will I lie,' be the penalty what it might.

"The amendment of the Lords to the clause was then negatived.

"In the discussion, Lord MORPETH read extracts from the despatches of our consuls in various foreign ports, containing descriptions of the ravages made by the Cholera, and showing the steady approaches which it was making to this country. He was, therefore, most anxious that the Committee should assent to the various precautions which the House of Lords had recommended as best calculated to arrest the progress of that terrible disease."

Again the Bill went up to the Lords, and was finally disposed of as follows, on the 15th of August:

"Lord CAMPBELL, in moving the consideration of the Commons' amendments on those of the Lords to the Public Health Bill, expressed his dissent from most of them; but, inasmuch as the alternative was to accept them or to throw out the Bill, for the sake of the public he asked their Lordships to agree to them.

"The Earl of ELLENBOROUGH complained that their Lordships' amendments, to which the support of the Government had been promised, had been abandoned by them. The tendency of all the amendments made by the Lords was to extend the influence and benefits of the Bill, to do so at the smallest cost, and to secure the proper appropriation of the money of the public to the object to which it was intended to be applied; but he believed by the Commons' amendments many places in the country would be altogether deprived of the advantage of its adoption, while in every local board as the Bill stood there would be a power of jobbing which their Lordships' amendments would have prevented. The measure was not what it ought to be, nor

what he hoped it would become ; but such as it was he would accept it rather than give the House of Commons an opportunity of rejecting it altogether.

“The Marquess of LANSDOWNE expressed his deep regret that the Commons had rejected their Lordships’ amendments, particularly those which gave a more efficient control over local boards ; he trusted, however, that the provisions of the measure would lead to the exposure of the jobbing system, and thereby prevent its repetition.

“Lord REDESDALE complained of the rejection of the Prevention of Smoke Clause, and thought the Bill ought to be sent back with it re-inserted, believing if that were done the Commons would agree to it.

“Lord PORTMAN also regretted the loss of the clause, but thought it would be unwise to return the Bill with it re-inserted, which might have the effect of preventing its passing in the present session.

“The Duke of ARGYLL having expressed a similar opinion, the Bill was read a third time and passed.”

By this Act (11 and 12 Vict., Cap. 63), a General Board of Health was provided, and such was constituted. The First Commissioner of Woods and Forests (Lord Morpeth) was the President, and Lord Ashley and Mr. Edwin Chadwick, the two other members ; this Board having the superintendence of the execution of the Act, and the appointment of officers, inspectors, &c. On a petition from a certain number of inhabitants of a place or parish, the Board might send a superintending inspector to make a public inquiry (of which fourteen days’ notice was to be given) to examine witnesses as to the sewage, drainage, supply of water, the state of the burial-grounds, and the number and sanitary condition of the inhabitants. The Act contained 154 clauses of a sanitary character.

The public, from various circumstances, now became alive to the necessity of not only setting their houses in order within, but of looking into the state of affairs without ;—such as the cleansing of streets, the supply of water, the state of the sewage, &c. In the latter respect, Messrs. Walker, Cubitt, and Brunel (three eminent civil engineers), had been appointed to examine into the sewers of the City of London. These gentlemen made their Report at the latter end of August. Having considered the evidence given before the Sanitary Commission on this subject, it will be interesting, if only for the sake of comparison, to give the conclusion which these civil engineers came to on the state of the sewage. Their Report concludes with a short abstract of their general opinion in reference to the City sewers :

"We think," they state, "that *although there may be exceptions in particular cases*, the present sizes of sewers are not too great, and that they ought not to be lessened.

"That the sewers, *where made*, are efficient.

"That as from *three to four miles only* of the fifty miles of streets, courts, and alleys, within the City, *are without sewers or drains*, it is desirable that the same be constructed as soon as arrangements can be made for the purpose, so that every street, court, or alley, within the City, may be efficiently drained.

"That the City sewers, which receive the sewage of the portions of the adjoining county, are sufficient for the discharge of the county and City drainage.

"That as, of the 16,000 houses and buildings in the City, 6,672 *have not private covered drains*, it is desirable that these be provided.

"That the fall or inclination in the private drains is generally such as to keep the drains clear of deposit.

"That any general search for cesspools, for the purpose of opening and emptying them in private houses, would be impolitic as a general measure, and would be likely to be more injurious than the cesspools now are, if they are properly constructed, which should be ascertained.

"That the form of sewers has practically very little to do with the general question of their keeping clear of deposit, this depending very much upon their fall and the quantity of water; but that no fall or quantity of water is likely to be obtained in the City sewers sufficient to keep them clear of obstructions without the occasional aid of men in the sewer to remove hard deposit.

"That the most eminent men of their time have been consulted in, or have directed the execution of the City sewers, including Wren, Wyatt, Dance, and Rennie.

"That we have discovered nothing in the construction of the works which can justify our charging the Commissioners with waste in respect of the size or construction of the sewers or otherwise, although the outlay during the last ten years must have been great, as during that time more new sewers have been made than during the previous 130 years.

"That the system of flushing has been introduced lately with great advantage, and is already considerably extended.

"That the desiderata, in order to perfect the sewage of the City, are the formation of the three to four miles of sewers, the extension of private drains, and the flushing system by gates and tanks, as described in our Report.

"That neither of the new plans suggested by the Surveyor to the Metropolitan Sewers Commissioners, nor that of their Consulting Engineer, is applicable to the City sewers."

It must be borne in mind, that the above relates to the *City Sewers* alone, and not to what we may call the great

outworks of London, which are chiefly referred to in the Parliamentary Commission of Inquiry.

The debates in Parliament, and the discussions which now arose, prepared the public mind, in some measure, for the invasion of the threatened malady; and in the return of the Registrar-General for the week ending July 29, 1848, we have the first case of undoubted Asiatic Cholera recorded. It is there stated to have occurred in Belgravia (sub-district) to a female, aged fifty-four. The duration of the disease was fifty-eight hours. In a note appended to the register, Mr. Jorden, the registrar, states that "this was a distinct case of Asiatic Cholera, occurring in his own practice, of which he had seen much both at home and in the east. The patient was said to have suffered from a severe attack, when it prevailed before, some sixteen years ago. She was of delicate health, and suffered from *psoriasis inveterata*.* She was attacked suddenly in bed, at four o'clock in the morning, having the day before dined on half-boiled cabbage and some sort of dumpling."

Such was the commencement of the epidemic in the metropolis in 1848, and no sooner was the sad intelligence that it had really appeared, made public, than every journal teemed with gratuitous moral and medical counsel. Among all the various remedies which were suggested, the medical profession did not lose sight of a fact which had become patent to all observers, viz., that the dissemination of Cholera, whatever might be its proximate cause, was in some measure dependent on circumstances which were to be modified by appropriate hygienic means. Hence, among the various contributions to the weekly and daily journals, we find recommended comfortable and nutritious animal food of the solid kind, warm clothing, an attention to regular hours, free ventilation and cleanliness, as well as limewashing the dwellings of the poor; abstinence from spirituous liquors, from all fruit and raw vegetables, from salt fish and oysters, and from all excesses which disturb or debilitate the constitution.

It was with much pain and with deep sympathy, that we day after day read of such recommendations as the above. Tracing the progress of the disease, it was obvious that the Destroyer had chiefly marked out his victims from among the lower classes;

* A cutaneous affection consisting of patches of rough, amorphous scales, continuous or of indeterminate outline; from *ψώρα*, the *itch*.

and in contemplation of the circumstances by which that portion of our fellow-creatures were surrounded, we naturally proposed to ourselves the question, Where, and how, if good and wholesome food be necessary as the prophylactics to Cholera, are the poor to find it? How are *they* to shelter themselves from, or avert the arrows of death? Such questions suggest necessarily many awful considerations which every political economist who is really a friend to humanity will do well to reflect upon. It will be observed, by the above narrative, that the disease had reached those very Institutions which had been devoted to the shelter of the penniless and houseless; while in the houses and the hovels of the "poor" of England its ravages were appalling. And has the history of past pestilences in this country, notwithstanding all this, conveyed to us no moral or practical lesson? We fear not; for it is demonstrable that, to the gross ignorance of hygienic laws,—the bad habits of the lower order of the people,—the exposure of the working classes to the inclemencies of the weather, to insufficient clothing, bad lodging, inefficient ventilation, and unwholesome food, much of this dreadful calamity is to be attributed; in illustration of which melancholy truth many distressing cases might here be described.

On the 5th of September, Parliament was prorogued, when her Majesty, in the speech from the throne, announced having given her cordial assent to the measures which had in view the improvement of the public health; and expressed an earnest hope that a foundation had been laid for continual advance in this beneficial work.

The following Order in Council, dated the 28th of September, was afterwards gazetted:

"Whereas, by an Act passed in the last session of Parliament, intituled 'An Act to renew and amend an Act of the tenth year of her present Majesty, for the more speedy removal of certain nuisances, and the prevention of contagious and epidemic diseases,' after reciting that it is expedient that, when any part of the United Kingdom shall appear to be threatened with or affected by any formidable epidemic, endemic, or contagious disease, measures of precaution should be taken with promptitude, according to the exigency of the case, it is enacted that, in Great Britain, the Lords and others of Her Majesty's Most Honourable Privy Council, may, by order or orders, to be by them from time to time made, direct that the provisions in the said Act contained for the prevention of epidemic, endemic, and contagious dis-

eases be put in force in Great Britain, or in parts thereof. And whereas the United Kingdom appears to be threatened with a formidable epidemic disease, in consequence of the progressive advance of such a disease to the western portion of the Continent of Europe, and a case has arisen for putting in force the provisions of the said Act: Now, therefore, it is hereby ordered by the Lords and others of Her Majesty's Most Honourable Privy Council, that the provisions contained in the said Act be put in force throughout the whole of Great Britain immediately, from and after the date of this order. And it is further ordered, that this order shall continue in force for six calendar months, from and after the date hereof."

Plans for purifying the sewers of London were now laid before the City Sewers Commission, and referred for consideration to a Committee. The first was from Mr. G. Elliot, of 10, Chandos-street, Covent-garden, which we give in his own words, as follows:—"I propose, premising that the sewers are constructed on the best principle, regularly flushed, with proper receptacles for discharges, and all gully-holes, street and surface drainage, to be properly trapped, that chimneys be erected at necessary and convenient distances, their interior hollow and of an inverted funnel shape, their height being regulated by circumstances. At their tops, or other apertures, a jet of ignited burning gas may be kept constantly directed against their openings. Attached to the interior and upper parts of the sewers, a continuous line of iron pipes, kept constantly charged with hot water, should be fixed, to more effectually, safely, and evenly propel the foul air to the flue of the chimneys. As the requisite supply of hot water will be very small, and its play on the principle of 'water finds its level,' one engine-house will be sufficient for a large district." Mr. Elliot, who had not made any calculation as to the expense, asked to try his plan on a small scale; he had not yet made any experiments. He was not an engineer, and, at present, would not give further explanations of his views. The other plan was proposed by Mr. C. Eginton, of 29, Leicester-square, and is as follows:—"A method of sewage by which the formation and dispersion of poisonous exhalations from the faecal matter of our sewers and cesspools will be entirely prevented; the whole being gathered in an undiluted form at extramural stations, and treated by a cheap chemical process, to obviate the loss of a volatile and invaluable ammonia, and so render it presentable to the agriculturist as a dry transportable manure, at the same time freeing our

atmosphere and the waters of our rivers from contamination, and bestowing a hitherto unattained degree of fertility upon our land, an equal distribution of fruitful agents, and the realization of an immense revenue from the refuse which has been hitherto known only as a source of misery, disease, and death. The enormous expense of erecting high-shaft chimneys for the purpose of carrying the effluvia from the sewers to high altitudes will be dispensed with, as also that of excavating deep canals for manure ducts; the united cost of which plan would construct, according to my system, a thoroughly efficient sewage, that would be at once a complete sanitary measure, and a lucrative opportunity for investment."

In addition to the case reported by Mr. Jorden, some other reputed cases of Cholera had been reported during the summer. In Dr. Parkes' report on Cholera, presented to the Board of Health, we find that a case had occurred to Mr. Hallen, of Sloane-street, in the early part of July, another to Mr. Howell, of Wandsworth, at the end of the same month. On the 18th of September, a case occurred to Mr. Russell, of Horsleydown, in the person of a sailor, who had just arrived from Hamburgh. Eight days later a second case occurred to the same gentleman, and two or three days afterwards a third case was treated by a neighbouring practitioner. On the 30th of September, a case was reported in Lower Fore-street, Lambeth, and in the following four days three other cases were seen in the same locality. On the same date (September 30th), a case was witnessed by Mr. Keen, of Chelsea; and during the next week five other cases occurred in the same, or in the adjoining houses. On October 1st, a case happened in the practice of Mr. Digby, of Fleet-street. In the week ending September 30th, only four cases are reported by the Registrar-General; the average at this time for all cases termed Cholera being seven. In the week ending September 7th, the number of fatal cases in London termed Cholera had risen to thirteen.

On the 2nd of October, the Cholera broke out, on the river Thames, opposite Woolwich, on board the "Justitia" hulk, and continued to prevail until the patients were transferred to the Unité Hospital Ship, off the Royal Arsenal. There had previously been no cases in the Arsenal, or in any part of the town.

From the above date, to October 10, five deaths had occurred, all the deceased being convicts. In consequence, the convicts on board the "Justitia" were permitted to have pipes and tobacco to smoke, and tea or cocoa was substituted for their usual allowance of gruel; tea and cocoa were also allowed to the convicts on board the "Warrior," opposite the Royal Dockyard. In the next week seven deaths occurred on board the same hulks. The surgeon attributed the disease to the unhealthy state of the atmosphere and to the locality, a common sewer being in the immediate vicinity. The captain of the ship ascribed it to the rotten condition of the hulk, and to heat generated during the night by so many men being closely packed together,—a ward containing as many as from ten to twenty-four men sleeping in it, according to its size. The last two cases, which occurred in this week, were of athletic young men, and the disease lasted four days. On the 20th of the month, all the convicts were removed from the "Justitia" to the "Hebe" and "Sulphur," vessels then stationed opposite the Royal Dockyard,—an arrangement creating some alarm in the yard. Beyond this, the town of Woolwich remained free from the disease. Scarlatina, however, was very prevalent. In the same week, the deaths of two boys were registered, from Cholera; the illness of one of whom was attributed, by the Registrar, not only to contagion, but to miasma generated in a badly-ventilated and comfortless apartment, and increased by the presence of another sick person, who died of the disease. By the 28th of October, the disease had appeared at Millbank Penitentiary; where it proved fatal to three prisoners.

From this period to the end of March, 1849, the Cholera pursued a steady course, throughout numbering very many victims per week. The details attending those cases are of much the same character as we have above described. The Registrar-General's weekly returns presented at this time overwhelming evidence of the deficient sanitary condition of the metropolis, and of its effects in augmenting the prevalence and fatality of the epidemic.

In October, 1848, a meeting of the Common Council of the City of London was held, when Mr. Deputy Peacock brought up the Report of the Commissioners of Sewers, recommending the appointment of a Medical Officer for the City and Liberties of

London, until January. That document represented, that the Court of Sewers had come to the resolution of recommending two competent medical gentlemen, of whom the Court of Common Council was to select one; that the successful candidate was to be permitted to carry on his private practice, and the Corporation to remunerate him from the time of his appointment till the 1st of January, when the City Sanitary Act was to come into operation. Mr. Peacock, having moved the adoption of the Report, the following conversation took place :

“ Mr. WIRE said, such a proposition appeared to him to be a most extravagant piece of humbug. (A laugh, and loud cries of ‘ No, no ! ’ and ‘ Yes, yes ! ’)—Deputy PEACOCK believed Mr. Wire was the only man in the Court who would designate such a recommendation by such an epithet. (Hear, hear.)—Mr. RICHARD TAYLOR felt much pleasure in seconding the adoption of the Report. Some might think less of the danger than others; but certainly, the most eligible course for the adoption of the Corporation, was that of precaution. (Hear, hear.)—Sir PETER LAURIE heartily thanked the Commissioners for their active and skilful conduct, particularly during the last month. He was not one of those who apprehended any serious danger from the Cholera; and he thought it most likely that the City of London would maintain its character of being the healthiest city in the world in any emergency. The Commissioners had done wisely in determining that the medical men to be elected should be allowed to practise; for nothing could be more unwise than to choose a person whose object it would be to seek a situation for himself. (Hear.)—Mr. NORRIS thought it would be advisable to defer the consideration of the question until the Commissioners could act under the authority of the law. What right would a medical officer, at the present moment, have to perform any of the duties set down for his observance by an Act which could not be operative for upwards of two months?—Mr. BOWER looked upon the appointment of a medical officer as merely the appointment of a man to do the business of the Court of Sewers.—Mr. ANDERTON said, his surprise was, that such an officer had not been appointed years ago. He applauded the permission to the medical officer to practise, for such permission would have the effect of collecting for their choice some of the ablest men; while a prohibition would necessarily lead to the offer of comparatively unskilful and inexperienced adventurers. (Hear.)—Mr. WIRE was willing to trust the Commissioners with the health of the City of London, without the assistance of a medical officer. The Bill provided inspectors to inquire into the existence of nuisances from which diseases arose; and finding that such securities were afforded for the preservation of public health, he could not designate the proposition by any other name than an extravagant piece of humbug. (No, no.) He did not mean to apply the word irreverentially with reference to the visitation of Providence; but he could not help saying, that a vast deal of nonsense and absurdity

were foisted upon the public by persons interested in the excitement of popular alarm. (Hear, hear.) What with deodorism and other influences, and the most audacious quackery, the 'isle was frightened from its propriety,' and the City of London was about to exemplify the ingenious dialogue, in which the Cholera was represented as having killed 3000, while the fear of it killed 30,000. (Laughter.)—Alderman LAWRENCE said, it was nothing new to appoint a medical man by the Commissioners of Sewers. Before they could act upon the representations of the inspectors, they were obliged to have the sanction of two medical men. He generally agreed with Mr. Wire; but his worthy friend had, on the present occasion, joined in the popular cry. (Hear.) He believed there was an unnecessary cry of danger raised for interested purposes; but all believed that the period was near when disease would be rife among them, and, in large towns like London, there should be a medical officer to watch its approach, and to give confidence to the public. He had found it necessary to apply to the Metropolitan Commissioners to remedy a nuisance in a property of his in Surrey. After they had consulted together, they told him they were very sorry they had not the power to apply a remedy. (A laugh, and cries of 'Hear, hear.') So the Metropolitan Commissioners could not remove one nuisance, while the City Commissioners were removing thousands. (Hear, hear.) He trusted and he believed the best medical men would be elected; and he was decidedly in favour of allowing the officer to be chosen to practise. After some discussion, the following motion was carried:—"That this Court do agree with the Commissioners of Sewers that it is highly necessary that a medical officer of health be forthwith appointed; and that a sum for that purpose, not exceeding 150*l.*, be paid out of the City's cash; and that the Court of Sewers be requested to nominate two fit and proper persons, of whom the Court will appoint one, to be the medical officer of health for this city and its liberties."

Viewed in the light of the final catastrophe, this debate assumes a curious importance, and will, at least, serve to teach the virtue of modesty, when the question to be discussed has connection with the ways of Providence.

The *Gazette* of October 10th, 1848, contained a notification on the prevention of Cholera, issued by the General Board of Health, under the Nuisances Removal and Diseases Prevention Act. It repeated, what had often been asserted before by the authorities, that Cholera was not contagious; so that panic, flight from the sick, and quarantine regulations, &c., under that hypothesis, were supererogatory evils. The notification warned the guardians of the poor and parochial boards, &c., that they would be called upon to put the Nuisances Act into operation, and supplied them with much useful, distinct, and specific advice as to the modes of doing

so. The boards were to institute visits from house to house, especially in "dangerous" districts (marked out by prevalence of Typhus and other epidemics), to enforce the internal and external cleansing of dwellings, the removal of filth, decaying animal and vegetable matters, and whatever might produce atmospheric impurity; to give directions for obtaining dryness and ventilation,—moisture being regarded as an active cause of Cholera; to supply the poor with information; to provide them with physic, and to remove destitute patients to proper asylums,—general Cholera hospitals not being recommended. The document then proceeded to the subject of remedies, and other matters concerning treatment.

The Police Commissioners also issued an order, directed to each Superintendent of the Metropolitan Police, to make a daily return of all cases of Cholera occurring within their respective divisions. The form to be adopted was as follows:

"CASES OF CHOLERA.

"No. reported.—Recovered.—Total.—No. attacked yesterday.—Total.

"These are to be placed in separate columns, and orders are also issued directing that every medical gentleman residing in the metropolitan divisions which will take in the A, B, C, D, E, F, G, H, K, L, M, N, P, R, S, divisions, is to be communicated with; that every case that may come under the notice of each individual medical attendant is to be noted down, and that one or more men of each division, according to the extent, are to be speedily engaged to go round to the respective residences of each surgeon and obtain the returns. The above order is to commence to-day, and the first return is to be made to-morrow. The number of persons attacked are to be reported by 12 o'clock each day. The Thames Police are to perform the same duties among the shipping in the river, and to make a return of all cases which occur and are not taken ashore. The object of this order and regulation is to obtain a complete and authentic list of the actual amount of cases, as well as the condition of the class of persons attacked, thus preventing exaggerated reports of persons dying suddenly, or from short illnesses from other causes, being termed Cholera. The number of deaths and recoveries are, it is understood, to be published in an official form from day to day, similar to what was done when this dreadful scourge visited the metropolis in 1832. The hospitals and workhouses are included in the above order."

On Friday, Oct. 13th, 1848, the Lord Mayor of London, on taking his seat in the Justice-room, Mansion-house, said that the greatest efforts were being made by the City Commissioners of Sewers to enforce the sanitary arrangements of the Board of

Health ; and that the receipt of a letter that morning from the President of the Royal College of Physicians, had given him much satisfaction. This letter was in the following terms :

“ MY LORD MAYOR,

“ Dover-street, Oct. 12.

“ Your Lordship, I feel assured, will learn with satisfaction, that the College of Physicians has appointed a Standing Committee, consisting of the physicians of the great metropolitan hospitals, and other eminent persons, for the purpose of inviting and considering communications on the subject of Cholera, and, if necessary, of suggesting such measures and precautions as may appear expedient to insure the confidence and safety of the public.

“ I have the honour to be, my Lord,

“ Your Lordship’s obedient Servant,

“ J. A. PARIS,

“ President of the Royal College of Physicians.

“ To the Right Hon. the Lord Mayor.”

Towards the end of the year 1848, the intensity of the disease appeared to diminish. In the last week of December, 1848, only 30 deaths were registered—about one half in comparison with the first week in November. The returns, however, again rose. In the second week of January, 94 deaths were recorded ; but, again receding, March closed with only 10 deaths.

The Statistical History of the disease, then, from Sept. 23, 1848, to March 24, 1849, may easily be summed up ; and the following Table will show the mortality from Cholera in the five districts of the metropolis, with their area in square miles :—

DISTRICTS.	Area in Square Miles.	Deaths from Cholera.	Proportion of General Mortality to Population in 1848, 1 in
West	17 2	86	37
North.	20·5	71	36
Central	2·8	49	38
East	8·8	262	30
South.	66·2	523	32
	55·11	991	—

The general conclusion to be drawn from this Table is, that the mortality from Cholera and the mortality from all other causes follow the same law so far as districts are concerned ; thus, the City is most highly favoured ; the west and north district next ; and the east and south are the worst in point of mortality ; but, contrary to what holds as to all causes, instead of the south being more favourable than the east, it is the opposite as regards Cholera.

In the twenty-five weeks, from October 7, 1848, to March 24, 1849, the deaths from Cholera were:—males, 503; females, 467,—total, 970; and its fatality at different ages, male and female, in the same period, was as under:

AGE.	DEATHS.	
	Male.	Female.
0	66	68
5	102	95
10	58	40
15	58	34
25	52	69
35	57	63
45	46	41
55	41	25
65	19	22
75	4	10
85	—	—
95	—	—

The duration of the attack will be seen from what follows:

Duration of Attack to Death.	DEATHS.	
	Males.	Females.
0 hours.	8	11
6	54	43
12	79	75
18	49	54
Under 1 day.	190	183
1	86	69
2	43	47
3	43	41
4	29	19
5	22	23
6	7	16
7	10	11
8	2	3
9	2	1
10	4	1
14	2	3
21	—	—
28	1	—
35	—	1
?	62	49

The question of atmospheric causes being so much debated with reference to Cholera, we append the following Table, showing the number of deaths in each week, with the atmospheric phenomena attending them :

Week ending.	Number of Deaths from Cholera.	Weekly Average of Five Years.	Mean Height of Barometer from Observations.	Mean Temperature from Observations.	General Direction of the Wind.	Amount of Horizontal Movement of the Air.	Rain in Inches.
Sept. 23	7	7	29 800	56·7	Calm	440	0·15
" 30	4	7	29 476	56·7	N.E.	837	1·89
Oct. 7	13	1	29·796	60·3	S.W.	985	0·26
" 14	30	1	29·824	52·1	N.	1010	0·42
" 21	45	1	29·632	44·7	N.	1075	0·81
" 28	34	1	29·457	51·5	S. by E. & S.S.W.	1290	1·35
Nov. 4	65	1	29·423	44·9	Variable	665	0·89
" 11	62	1	29·872	40·3	W.S.W., W.N.W., & N.	1070	0·11
" 18	54	1	30·095	42·1	N.N.W. & S.W.	1005	0 08
" 25	34	1	29·560	45·5	Variable	1450	0·29
Dec. 2	20	1	29·740	46·7	S.W.	1685	0·86
" 9	21	1	29·444	49·0	S.W.	2040	0·74
" 16	29	1	29·880	50·2	S.S.E.	1145	0·92
" 23	31	1	30·017	37·5	E.	540	0·07
" 30	30	1	29·944	41·2	.....	765	0·44
1849							
Jan. 6	61	·4	29·847	30·7	N.E.	535	0·24
" 13	94	·4	29·528	39·3	S.W.	150	0·48
" 20	62	·4	29·783	46·6	S.S.W. & S.	1340	0·25
" 27	45	·4	29·979	45·8	S.W.	2215	0·17
Feb. 3	37	·4	29·952	40·6	Variable	820	0·52
" 10	55	·4	30·286	45·0	Variable	1800	0·06
" 17	49	·4	30·492	40·7	W.S.W. & S.W.	555	0·00
" 24	40	·4	29·814	45·4	Variable	1440	0·67
March 3	35	·4	29·725	42·4	Variable	} Instru- ment broken	1·48
" 10	15	·4	30·096	43·0	S.W. & N.W.		0·12
" 17	9	·4	30·138	45·9	N.W.		0·00
" 24	10	·4	29·963	40·0	N. & E.		0·00
	991	31·8					

CHAPTER VI.

The Second Outbreak.—1849.

ON the 21st of April, 1849, it appeared, from the weekly bills, that the mortality from Cholera had fallen to its average of five Springs—only one death having been registered from that cause, in the week ending on the above date. This cheering result, however, was accompanied by a plain indication that the general health was by no means in a satisfactory state. In the same week there was a considerable excess of mortality over the weekly average of Spring, from all causes; while, from diarrhœa and dysentery, nine deaths more than the average occurred. On the 5th of May, the Registrar-General reported, that the “Summer approaches, and brings with it the usual improvement in the public health.” While this statement, however, might be perfectly correct as to deaths from *all* causes, it was yet evident that the Cholera had only succumbed under the influence of an extraordinarily low temperature; in the week ending April 21st, the thermometer had marked 37° Fahr.; in the week ending May 5th, it had risen to 55°, and, coincident with this rise, four deaths from Cholera and twenty from diarrhœa, were reported—in all eleven above the average. But while it may be natural to attribute a part of this result to atmospheric influences, it ought to be borne in mind, that conditions were still existing, within the range of human efforts to remove, which depended mainly on the prevailing temperature to produce their deadly effects. Notwithstanding the lesson which had been taught, towards the close

of the year 1848, well-considered sanitary arrangements were still wanting. In the week ending May 5th, respecting one of the four deaths from Cholera, Mr. Earles, the Registrar, states, that "the health-officer of the parish and himself visited the house in which this case occurred, and found *twenty-six persons living in it, of whom eight slept in the garret in which the child died*. They attribute the disease to extreme poverty, bad ventilation, and the noxious effluvia arising from the gorged state of the cesspools. Another child has since died in the same room, upon which an inquest is about to be held." In the week ending June 9th, the deaths from Cholera had risen to twenty-two; while those from all causes exhibited an increase of nearly eighty on each of the two preceding weeks. One of the deaths from Cholera, (and which occurred in Bermondsey,) is thus referred to by the Registrar of the district: "The case occurred in a house overhanging the filthy and disgusting tidal ditch. Other cases have occurred on the same spot, two of which have proved fatal, but are not yet registered." The Jury expressed, in no measured terms, their opinion of the Commissioners, "who having recently had the opportunity of purchasing this tidal ditch, and the power of closing up the present large open drain, refused to do so, from a trifling pecuniary consideration, leaving the thousands of persons who reside upon its banks to suffer from the pestiferous effluvia constantly arising therefrom." And again, in respect to this same ditch, on the next week, nine cases of Cholera are reported in Bermondsey, and are thus referred to by the Registrar: "All the nine cases of Cholera reported this week, occurred on the banks of the disgusting tidal ditch mentioned in last week's report. Seven of them occurred within fifty yards of each other. This ditch, formerly used as a mill-stream, is now the receptacle of all kinds of filth. Putrid fish in large quantities is frequently thrown in; many of the poor drink the water, and use it for culinary purposes." From May 19th to the week ending August 11th, the deaths from Cholera had been respectively, in the thirteen weeks, 1, 5, 9, 22, 42, 49, 124, 152, 339, 678, 783, 926, and 823. Of this latter number, no less than 819 were certified by the medical attendants; but the Registrar-General well observes,—'It is to be feared that the advice was not obtained in time. The accounts of the sudden stoppage of the epidemic by prompt medical

treatment, and the house-to-house visitation, are perhaps over-coloured. But a mortality as high now as in 1832 should not take place; it may be prevented by improvements in the treatment, by arresting the premonitory symptoms, by still earlier attention to the general health. Medical men are called when the people are dying; but it is then too late. If the families of the middle and higher classes were seen at intervals during the epidemic by their medical attendants, and a corps of medical officers employed by the Guardians to visit the poor at short intervals, the present epidemic might very probably be cut short, and a third eruption be averted. The precise locality in which almost every victim of Cholera lived is given in the present return under each district; would it not be practicable for the authorities to have all these and the neighbouring localities inspected? If this were done, and proper precautions taken, the tragedies of Albion-terrace, Wandsworth-road, where seventeen persons died in two weeks in ten houses, could scarcely recur. In the house, No. 6, Albion-terrace, five deaths had been registered—a Wesleyan minister's wife, aged 59; his mother, 80; a widow, 49; and two old servants. This is all we learn from the Clapham Registrar. The Registrar of Hampstead adds;—that during the week an aged man came with a friend to Hampstead for change of air; breakfasted, dined, went to London to transact business at the Bank of England, and after his return seemed 'pretty well.' About six o'clock the next morning he felt ill, and had medical advice, but died in eight hours. This old minister was apparently the last of his family,—for he had seen his mother, wife, and servants die before him in Albion-terrace, and could not fly from the poison which he carried in his breast. Such scenes of desolation could scarcely happen without great negligence on the part of the people themselves, and on the part of the authorities."

The deaths from the prevailing epidemic had now (August 18) reached the terrible number of 1,230, besides 188 from diarrhœa, and the details of these cases, in the weekly bill of mortality, occupied ten crowded folio pages. In the next week, the Cholera numbered 1,272 victims. The Registrar's observations at this date (August 25) are so valuable and just, that we feel it would be a dereliction of duty on the part of the chronicler, were we to omit them. He observes:

“The energy with which parts of our institutions work, makes the defects of the rest more evident. On August 9th last, a man was murdered in Bermondsey; and before his death, reported by the coroner, will appear in these returns, one—and it is probable both—the persons charged with the murder, will be in custody. Steam-ships, the electric telegraph, the heads of police, and professional agents, specially chosen, were all employed to arrest the destroyers of this life; the columns of the newspapers were filled with the details of the death. On the same day (August 9th), a stockbroker died at No. 12, Albion-terrace, Wandsworth-road; a widow lady, and an old domestic servant, at No. 6; in the five preceding days, in the same terrace, the daughter of a grocer, a child of five years of age, had died at No. 1; the widow of a coach-proprietor, and a commercial clerk, at No. 2; a gentleman's widow at No. 3; a surgeon's daughter at No. 4; a spinster of forty one, at No. 5; the wife of a dissenting minister, his mother, a widow lady, and a servant, at No. 6; a young woman of twenty-one, at No. 10; a gentleman at No. 12, where the stockbroker died; a commercial clerk and a young woman of nineteen, at No. 13, where a young woman also died on July 28th; a gentleman's wife at No. 14, who had seen her daughter die the day before. The nineteen persons died of Cholera, many of the inhabitants of the terrace were indisposed, and the deaths of several have been registered elsewhere. ‘It appears,’ says the registrar, Mr. Frost, ‘that at No. 13, inhabited by Mr. Biddle, where the first death occurred, and where two deaths were afterwards registered, the refuse of the house had been allowed to accumulate in one of the vaults (which is a very large one), for about two years; and when removed last week, the stench was almost intolerable, there being about two feet of wet soil, filled with maggots; the drains had also burst, overflowed into the tank, and impregnated the water with which the houses were supplied. On the back-ground, in the distance, was an open ditch, into which nearly the whole of the soil of Clapham runs.’ As turpentine to flames, so is the exhalation of such cellars, tanks, and sewers to Cholera; it diffused itself rapidly, attacked many, and nineteen inhabitants, after some hours of suffering, sickness, and spasms, expired.

“The effects of decomposing refuse and water on health were well known; their fatal subsidies to Cholera had been heard of every day; yet no steps had been taken for their removal from Albion-terrace in July; no medical police had interfered to disturb the contents of Mr. Biddle's cellar. And now the nineteen, masters, servants, parents, children, rest in their graves, it appears to be taken for granted that blame attaches to nobody,—to nothing,—to the householders themselves—to the guardians of the district—to the institutions of the country! Such mean, intangible instruments of death can be invested with no dramatic interest; but, fixing our eyes on the victims, it is well worth considering whether substantially it is not as much a part of the sound policy of the country that lives like those in Albion-terrace should be saved, as that the murderers of the man in Bermondsey should be hanged?

“The revelations of the state of their districts in the registrars' notes of this

and last week, prove that it will be no easy task—I say, not to stay the plague of Cholera, for it will subside, but to remove the evils which make Cholera and all epidemics fatal. The vast task of the physical melioration of the population, demands the energies of the best men in Her Majesty's dominions. When, in the country from which Asiatic Cholera came, our armies seemed for a moment worsted, and the empire threatened, the great Captain of the age is reported to have addressed to another the memorable words, 'If you do not go, I must.' That enemy was distant. We have one very near in our streets, of which Cholera, a servile minister, has destroyed, already, 4,470 lives in London, and thousands more in the rest of the kingdom. Who will go out against this enemy? Is it too powerful or too feeble for the arm of the greatest? Will no glory crown its conquest? Is the country insensible to its magnitude? Will not all the national strength and resources be put forth to improve the hygienic condition of the people, and to rid England of the causes of the fatality of epidemics? This may yet be done by the Government, aided by the force of facts and of enlightened public opinion."

The month of August, 1849, having been so fatally distinguished by the progress of the Cholera, it will be a valuable addition to our knowledge to note the various phenomena of the weather during that period. It appears from the observations of Mr. Glaisher that, till the 12th, the air was in very little motion; from the 12th to the 16th it moved rather quickly, and from the 17th it was frequently in a calm state. At the beginning of the month the sky was often cloudy, but, at times, free from clouds; during the latter part of the month it was nearly always overcast, accompanied with a very angry atmosphere; at times the haze and mist were so dense as to cause a great gloom. During the last seven or eight days of the month, London was not visible from Greenwich Park; it was hidden by a dense fog-like mist, which hung over the city. After the first few days of the month the temperature ranged high, and towards the end the air was close and oppressive; scarcely any rain fell; the atmosphere was dry; the reading of the barometer at the height of 159 feet ranged from 29·46 on the 13th, to 30·22 on the 22nd; the temperature of the air varied from 42·4 to 82·5, thus exhibiting a difference of reading within the month of 40·1; on some days, at the beginning of the month, the difference of temperature on the same day exceeded 30°; the average difference of day and night from the 22nd was 17°. The average value of the several subjects of meteorological research for August, for a series of years, are shown in the sub-joined table.

August. Year.	Corrected Reading of Barometer.	Elastic force of Vapour.	Pressure of Dry Air.	Mean Temperature of			Average daily Range of Tempera- ture of Air.	Weight of Water in a Cubic Foot of Air.	Additional Weight of Water re- quired to Saturate a Cubic Foot of Air.	Degree of Humidity.	Average Weight of a Cubic Foot of Air.	Amount of Cloud.	Rain.	
				Air.	Evapo- ration.	Dew Point.							Amount in Inches.	Number of Days on which it fell.
	In.	In.	In.	°	°	°	°	Grs.	Grs.	In.	Grs.		In.	
1841	29·768	0·442	29·326	60·5	57·4	55·0	16·3	5·0	1·0	0·828	525	6·5	2·2	15
1842	28·869	0·505	29·364	65·4	61·2	58·9	20·3	5·6	1·5	0·819	521	4·8	1·8	8
1843	29·819	0·490	29·329	62·1	59·5	57·8	16·4	5·5	0·9	0·866	523	6·0	3·6	12
1844	29·677	0·406	29·271	57·7	54·6	52·3	15·4	4·6	0·9	0·840	524	6·2	2·0	11
1845	29·729	0·409	29·320	57·3	54·7	52·6	14·8	4·6	0·8	0·858	527	6·5	3·1	17
1846	29·777	0·481	29·296	63·2	59·8	57·5	15·5	5·4	1·1	0·826	521	7·6	4·0	11
1847	29·876	0·459	29·417	62·1	59·5	56·1	21·0	5·3	0·8	0·862	523	6·8	2·0	11
1848	29·732	0·411	29·321	58·5	55·2	52·8	18·5	4·5	1·2	0·797	524	7·6	4·3	29
Average	29·781	0·450	29·331	60·8	57·7	55·4	17·3	5·1	1·0	0·837	524	6·7	2·8	14
1849	29·841	0·417	29·424	62·9	57·3	53·0	20·2	4·8	1·8	0·727	524	7·9	0·4	3

From the above numbers it appears that the reading of the barometer exceeded the average by 0·063 inches, and that the water mixed with the air counterbalanced a column of mercury of less than its average height by 0·030 inches, and therefore the pressure of dry air exceeded its average value by the sum of these two quantities, viz., by 0·093 inches; the temperature of the air exceeded the average by 2·1. The average value from seventy years is 60·8; the years in which the averages for August have been as high as in this year are 1778, 1800, 1802, 1807, 1818, 1819, 1826, and 1846. Notwithstanding this high temperature of the air, the point of evaporation and dew-point were below their average value, and consequently there had been less than the average weight of water mixed with the air; the additional weight of water required to saturate a cubic foot of air was 1·8 grains; the average quantity is 1 grain,—this implies great dryness; the degree of humidity of the air was 0·727 only, its average value being 0·110 more. No August in this series of years had been so dry; the sky was more clouded than usual; rain fell on three days only, and the amount collected was less than half an inch; so small a quantity of rain had not fallen in August since the year 1819. The number of days on which rain fell in August, 1848, was 29, and the amount collected was $4\frac{1}{4}$ inches. The amount of electricity in the atmosphere was small throughout the month.

In the week ending September 1, we have recorded 1,663 deaths from Cholera, against an average of 8 for five summers; this made up an aggregate number of deaths from the first breaking out of 9,129; and in the next week, we have the highest number, viz., 2,026 individuals in seven days cut off by this one disease. For the week ending September 15, the mortality had decreased to 1,682; in that week's bill of mortality the Registrar-General observes:—

“ On Sunday, the inhabitants of these islands, in the city and the country, in their cathedrals, village churches, and chapels, assembled to entreat God to stay the destroying plague, and, as if by anticipation, it began to subside; so that the time was most appropriate. After they had been journeying through the gloom, while the darkness grew thicker, the terror greater, the strokes of mortality nearer, and everywhere uncertain, the light began to dawn, and the prayer—half supplication, half thanksgiving—rose of itself from the hearts of the people. These great acts of religion are rarely per-

formed in England; and whether the earnestness of the nation, or the truth of God is regarded, the prayer for health has a much more serious import here than the ceremonial rites of paganism in Persia, Greece, or Rome; yet there it would have been deemed impiety to ask the increase, or the earlier and later rains, unless the land were tilled and the seed sown; or to implore victory for their arms, except through the valour of well-equipped armies. The prayer for the public health in England is a solemn pledge, not only that all the powers of the State, but that the local authorities, the clergy, the educated classes, who form and govern opinion—all the multitudes who join in that prayer—will employ the means which, with God's blessing, will insure its accomplishment, and save the people from the ravages of the Cholera and other epidemics.

“Thousands of the houses of London have now no pure water; in some places, where the Cholera is most fatal, the inhabitants are driven to use the polluted waters of tidal sewers for culinary and household purposes. This state of things will exist no longer; the first engineers of the country will be employed to lay the rivers under contribution, and in every house there will be a spring of fresh, filtered, living water; for circulating water is the life-blood of a city. The bodies of the dead, ‘sown in corruption,’ will be decently interred in distant grounds and sacred groves, where their flesh may be resolved into its elements, without tainting the air and destroying their brothers. The carnage of slaughtered animals will no longer be suffered to infect the air of cities. The sinks and sewers of London—black, bubbling lakes and rivers under-ground, extending from the Thames to the house-drains and cesspools—send up damps into dwellings nightly, travel by us in the streets daily, and through a thousand mouths, by the way and river-side, pour their poisonous incense on the passengers for ever; these emanations, if not drawn through and decomposed by fire, will no longer open under our faces, but ascend with the smoke over the houses, and other matters be carried solid or in streams of water, over distant fields.”

On Saturday, September 22nd, the mortality from Cholera had again diminished, and that to half the amount of the previous week; again, in the next week, it fell to 434; then weekly, to 288, 110, 41, 25, 11, 6, 8, until the week ending November 24th, when it fell to 2,—being six under the average of five autumns.

The 15th of November was appointed for a general thanksgiving to God, “to acknowledge his great goodness and mercy in removing from us that grievous disease with which many parts of this kingdom have been lately visited,” when the following form of Prayer and Thanksgiving was issued, by Her Majesty's Special Command, for use in all Churches and Chapels in England and Wales, and in the Town of Berwick-upon-Tweed:

“Accept, we beseech Thee, O merciful God, the praises and thanksgivings

of Thy people, whom Thou hast graciously relieved from the sore judgment of grievous sickness and mortality which has lately afflicted our land. Incline us to devote to Thy service the lives which Thou hast spared; and so enlighten our understandings and purify our affections by Thy Holy Spirit, that we may learn from Thy judgments to fear Thy wrath above all things, and may be led by Thy goodness to love Thee with our whole heart, through Jesus Christ our Lord. *Amen.*"

And,

"Almighty God, our Father and Judge, whose power no creature is able to resist; who hast in Thy displeasure brought us down to the gates of death, and in Thy mercy hast stayed the course of that pestilence, for which there was no help in man: to Thee alone we ascribe our deliverance; in Thee only do we trust, to preserve us both in body and soul. And now, O Lord, we entreat Thee to make the chastisement which Thou has sent effectually to produce in us a more lively faith in Thy word, and more entire obedience to Thy commandments. Make us so duly sensible of Thy mercies to this nation, in maintaining our domestic tranquillity, and in granting a plentiful return to the labours of our husbandmen, that we may show our thankfulness by an earnest endeavour to conform to Thy will, and to advance Thy glory. And may the frequent instances of mortality which we have beheld, remind us all of the nearness of death, and dispose us so to number our days, that we may apply our hearts unto wisdom; that, whether living or dying, we may be found faithful disciples of Him who has taken away the sting of death, and opened the gate of everlasting life to all believers.

"Hear us, O Lord, for thy goodness is great; and according to the multitude of Thy mercies receive these our petitions, through Jesus Christ our Lord. *Amen.*"

On this occasion, as on the day of humiliation before referred to, several eminent divines gave full expression to their sentiments regarding the condition of the population of London, referring its evils to influences which were within the power of man to remove.

Our next duty will be to consider the whole returns of the mortality from Cholera, and draw from them whatever practical conclusions they may afford. It is almost needless to say that for the greater part of this information we are indebted to the Registrar-General of Births, Deaths, and Marriages, whose reports are not only the sole source to which we could apply, but are worthy in the highest degree of public confidence both in virtue of the spirit which pervades them and their great accuracy.

And first, we give the following Table of the Deaths registered from Cholera during a period of twenty-six weeks, in each Superintendent Registrar's district, from the week ending May 26th to the week ending November 17, 1849.

TABLE OF THE DEATHS FROM
With their Population by the Census of 1841, their

DISTRICTS.		Population by the Census of 1841.	Estimated Population to the Middle of 1849.	Area in English Statute Acres.	May. 26.	June 2.	June 9.	June 16.	June 23.	June 30.	July 7.
LONDON		1,948,425	2,206,076	44,850	5	9	22	42	49	124	152
WEST DISTRICTS.....		300,711	346,509	Square Miles. $\left\{ \begin{array}{l} 17\cdot2 \\ 20\cdot5 \\ 2\cdot8 \\ 8\cdot8 \\ 66\cdot2 \end{array} \right.$	2	3	2	1	3	14	7
NORTH DISTRICTS.....		375,971	444,448		3	...	3	4	7	7	7
CENTRAL DISTRICTS.....		373,653	384,213		...	1	8	3	5	35	31
EAST DISTRICTS		392,444	445,859		...	2	3	4	13	23	14
SOUTH DISTRICTS		501,190	585,447		...	3	6	30	21	45	93
West Districts.	Kensington	74,779	98,320	2680	...	1	...	...	...	1	1
	Chelsea	40,179	48,392	780	...	1	...	...	...	...	...
	St. George, Hanover-square...	66,552	74,533	2500 $\left\{ \begin{array}{l} \\ \\ \\ \end{array} \right.$	...	1	1	...	...	...	1
	Westminster	56,712	62,881		1	...	1	1	3	13	4
	St. Martin-in-the-Fields	25,091	25,049		...	...	...	...	...	...	...
	St. James, Westminster	37,398	37,334		1	...	...	...	...	...	1
North Districts.	Marylebone	138,164	151,706	1490	2	...	...	1	1	1	3
	Hampstead	139,856	11,457	...	...	...	...	...	...	...	...
	Pancras		154,152	2600	...	...	...	2	2	3	1
	Islington	55,690	76,919	3050	...	...	1	1	2	3	2
	Hackney.....	42,261	50,214	3300	1	...	2	...	2	...	1
Central Districts.	St. Giles.....	54,292	54,199	250	...	...	...	...	...	...	...
	Strand	43,598	43,524	320	...	...	1	...	...	1	...
	Holborn	44,461	44,386		...	1	3	1	...	1	4
	Clerkenwell	56,756	65,725		...	...	...	...	...	2	1
	St. Luke	49,829	51,874	240	...	...	1	...	...	2	1
	East London	39,655	39,588	600 $\left\{ \begin{array}{l} \\ \\ \end{array} \right.$	...	...	...	1	1	...	1
	West London	29,142	29,092		...	...	3	1	4	22	19
	London City	55,920	55,825		...	...	...	...	...	7	5
East Districts.	Shoreditch	83,432	96,272	620	...	2	...	...	...	1	1
	Bethnal Green.....	74,088	85,109	760	...	...	...	...	1	...	1
	Whitechapel.....	71,765	77,199	160	...	...	3	2	3	4	2
	St. George-in-the-East	41,350	43,142	230	...	...	...	1	3	4	...
	Stepney	90,687	107,408	2130	...	...	...	1	4	12	9
	Poplar	31,122	36,729	...	...	...	...	...	2	2	1
South Districts.	St. Saviour	32,975	32,919	620	...	...	...	...	3	4	9
	St. Olave	18,479	19,804		...	...	...	6	2	3	5
	Bermondsey	34,947	39,672		...	...	3	11	7	6	13
	St. George, Southwark	46,644	52,004		...	...	...	1	...	4	3
	Newington	54,606	64,137	630	...	...	1	1	1	6	5
	Lambeth	115,888	143,557	3640	...	...	...	2	1	10	18
	Wandsworth.....	39,868	46,054	1820	...	1	...	...	...	1	1
	Camberwell	13,917	52,246	4570	...	...	1	...	5	3	2
	Rotherhithe	80,997	13,894	690	...	...	...	1	1	5	24
	Greenwich	39,855	93,964	2030	...	2	1	8	1	2	10
	Lewisham	23,014	26,796	1603	...	...	...	...	...	1	3

CHOLERA IN EACH DISTRICT.

estimated Population in 1849, and their Area in Statute Acres.

July 14.	July 21.	July 28.	Aug. 4.	Aug. 11.	Aug. 18.	Aug. 25.	Sept. 1.	Sept. 8.	Sept. 15.	Sept. 22.	Sept. 29.	Oct. 6.	Oct. 13.	Oct. 20.	Oct. 27.	Nov. 3.	Nov. 10.	Nov. 17.	Total of 59 weeks from Oct. 1, 1848.
339	678	783	926	823	1120	1272	1663	2026	1682	839	434	268	110	41	25	18	6	8	14588
29	46	43	58	54	81	103	169	181	172	68	72	39	15	4	1	11	...	1	1258
17	7	25	27	45	71	114	123	157	121	71	37	27	7	1	4	1	1	1	965
55	72	97	93	116	167	185	194	227	213	95	51	25	10	6	1	3	...	2	1739
46	110	104	127	132	356	393	447	290	330	183	113	91	32	17	15	3	1	...	3218
192	443	514	621	476	554	477	730	1071	846	422	161	106	46	13	4	1	4	4	7048
3	4	5	5	13	12	16	34	38	51	13	15	13	6	...	...	...	...	...	266
4	3	14	12	5	20	28	29	48	39	12	14	5	2	1	...	1	...	...	266
8	4	3	15	9	6	11	10	18	21	5	7	8	2	...	...	...	...	...	131
10	30	20	17	17	34	36	75	56	42	25	27	10	3	2	...	...	...	1	447
2	3	1	8	6	7	8	10	9	13	8	5	2	2	1	1	2	...	...	90
2	2	...	1	4	2	4	11	12	6	5	4	1	...	...	...	...	...	...	58
11	4	6	10	7	24	34	41	51	28	14	10	5	1	1	...	...	...	1	259
...	...	...	1	2	3	...	2	1	...	...	...	...	...	...	...	...	...	...	9
1	1	10	8	19	20	45	54	56	48	32	9	8	1	...	2	1	...	...	355
3	2	6	4	14	15	22	15	33	35	19	8	3	...	...	1	...	...	...	195
2	...	3	4	3	9	13	11	16	10	6	10	11	5	...	1	...	1	...	147
5	13	6	15	35	28	28	30	57	45	8	6	1	...	1	...	...	...	...	280
1	4	13	7	17	22	19	15	21	17	10	2	4	2	1	...	...	...	1	160
12	9	5	8	8	12	21	9	20	15	4	2	3	...	...	...	1	...	...	161
	2	5	4	6	16	10	18	15	20	10	6	3	1	...	...	...	...	1	125
3	8	5	11	8	13	24	22	28	33	9	9	2	3	...	...	...	...	...	187
5	3	9	13	14	18	20	22	28	17	14	3	8	1	2	1	2	...	...	185
20	18	35	32	18	40	35	45	42	43	21	19	4	2	2	...	...	...	...	432
7	15	19	3	10	18	28	33	16	23	19	4	...	1	...	...	...	...	...	209
4	6	17	17	21	98	121	139	109	91	52	31	29	12	5	3	2	...	...	796
5	5	10	16	35	125	127	128	96	91	36	28	15	7	5	3	...	1	...	807
7	14	20	30	28	45	55	74	58	48	39	17	20	4	2	2	1	...	...	548
11	7	9	16	16	17	10	15	27	18	6	5	8	1	...	4	...	...	...	210
11	35	22	31	24	55	58	64	59	49	30	17	11	3	4	1	...	...	...	525
8	43	26	17	8	17	22	27	41	33	20	15	8	5	1	2	...	...	...	332
14	14	32	46	47	57	52	65	75	49	29	15	6	6	1	...	...	1	...	547
4	23	26	38	28	28	25	41	44	33	16	10	6	2	...	...	...	...	...	363
23	64	64	67	56	53	53	70	101	72	32	9	10	6	1	1	...	1	1	771
16	51	70	112	62	73	57	77	109	108	58	10	8	7	3	1	1	...	...	872
13	53	66	86	55	65	65	93	157	137	66	15	15	2	...	...	...	1	...	927
49	106	111	143	84	96	89	180	279	234	117	50	24	7	2	1	...	1	2	1653
5	13	22	29	48	34	19	31	48	31	10	5	5	7	...	...	...	...	...	510
12	37	43	43	32	33	35	56	109	53	16	10	7	...	3	1	...	...	...	534
37	37	31	14	25	27	21	20	40	32	18	7	4	...	2	...	...	...	...	372
12	31	44	37	32	80	56	89	93	90	54	30	19	8	1	...	...	...	1	762
7	14	5	6	7	8	5	8	16	7	6	...	2	1	...	...	...	...	...	97

With reference to the localities in which Cholera especially prevailed, we quote from a paper "On the Health of London during the Six Months terminating 29th of September, 1849," by John Webster, M.D., F.R.S., in which that gentleman remarks :

"The worst localities were the low grounds adjoining the southern bank of the Thames. Notwithstanding the total population of this district being only about one-third of that on the northern side of the river (or 580,000 inhabitants), more than half the deaths by Cholera, or 6,708, out of the entire 13,114 registered, took place in the southern division of the metropolis; which makes the amount of deaths, in proportion to the population, treble of that recorded on the northern side of the river.

"Having adverted generally to the rate of mortality in the two great divisions of the capital, it now becomes interesting to notice the difference observed in several of the districts situated south of the Thames, as well for local comparison, as afterwards to contrast the amount of deaths there recorded with that met with in places lying north of the river, where a great discrepancy in the averages is often exhibited. For instance, in Lambeth parish, the deaths by Cholera were 1,570 during the last six months; the ratio was, therefore, one in every ninety-one inhabitants. In St. George's, Southwark, where Cholera proved fatal to 811 individuals, one person died in every sixty-four of the population; whilst in Bermondsey, with its tan-pits, glue-yards, tidal-ditches, and other local nuisances, injurious to the health of the labouring population resident in that insalubrious part of London, not less than 704 persons died by Cholera; so that the very large proportion of one in every fifty-six inhabitants became victims to the pestilence. But even this excessive mortality was exceeded by the numbers registered in the parish of Rotherhithe, where one death from Cholera actually took place in every thirty-eight inhabitants. Such an amount of deaths, seldom, if ever before witnessed, is most remarkable; and shows the extraordinary severity of the epidemic in that section of the metropolis."

The following Chart points out the relative positions of the districts in which Cholera prevailed, taking the level of the Thames at high water as a point of comparison: it also exhibits the rate of mortality from Cholera in each district, and the sources whence the supply of water to each was derived.



DIAGRAM SHOWING THE DEATHS TO EVERY 10,000 INHABITANTS IN EACH DISTRICT OF LONDON, IN THE FIFTY-TWO WEEKS, ENDING SEPTEMBER 29, 1849; THE WATER COMPANIES SUPPLYING EACH DISTRICT; AND THE AVERAGE ELEVATION OF THE INHABITED PARTS OF THE DISTRICTS ABOVE THE TRINITY HIGH-WATER MARK, AS ESTIMATED BY CAPTAIN DAWSON, R.E., FROM THE MAP OF THE COMMISSION OF SEWERS.

NORTH SIDE OF THE RIVER.
c. 42.

[illegible]

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SOUTH SIDE OF THE RIVER.

* The City of London within and without the walls is divided into three Unions for the relief the poor, making three Registration districts,—the City, the West, and the East. Bartholomew's Hospital is in the West District. The 65 and 146 include the deaths in St. Bartholomew's Hospital, into which many of the patients were brought from other parts, as well as from the West London District.

† For Registration purposes Paddington is united with the sub-districts of Kensington, Brompton, Hammersmith, and Fulham, under the name of Kensington. The district of St. George, Hanover-square, comprises the sub-districts of Hanover-square, May-fair, and Belgravia.

† Including the deaths in St. Thomas's Hospital, the mortality from Cholera in St. Olave was 179.

The deaths of several children who were removed from Mr. Dronet's establishment at Tooting, in the Wandsworth district, occurred and were registered in other districts of London. The deaths from Cholera in St. Luke's workhouse were transferred from the Shoreditch district to St. Luke's district in the calculations.

ABBREVIATIONS.—c. denotes deaths from Cholera to 10,000 living; e. denotes elevation in feet above Trinity high-water mark; the other letters denote the several Water Companies supplying each district.

And while we have the above pamphlet before us, we cannot forbear quoting the same author as to the preventive measures which he suggests in reference to the sanitary state of London he has so well described. He says:—

“First, then, I would most decidedly say, *intramural interments must be interdicted* throughout the kingdom. Drainage must be extended in densely-peopled neighbourhoods. Slaughter-houses must be removed from the crowded haunts of men; and public markets properly regulated, frequently cleansed, and, wherever practicable, placed in open, airy situations. Common sewers must be scientifically constructed, so as not to act as the conduits of disease. The Thames must no longer continue to be the *cloaca maxima* of London, especially as its filthy contents, by quadruple diurnal agitation, are rendered in a higher degree noxious to the neighbouring inhabitants, and to the many thousand persons who daily use the river as a metropolitan thoroughfare.

“Habitations in low, damp, and confined localities should be avoided, or made more salubrious by artificial means. The physical well-being of the population, especially the poor and labouring portion, must be improved. The light of the sun, and the admission of pure air into every dwelling, ought not to be taxed or impeded, but in every manner promoted, especially by a Government endeavouring to improve the public health. As the Imperial Legislature has sanctioned the importation of all kinds of food into the country without any duty, in order to increase the sustenance of the community, so ought it to permit the untaxed entrance of light and pure air, both being as indispensable as corn and mutton to the healthful maintenance of animal life and mental vigour. Good water should be supplied for every purpose, more particularly in densely-crowded districts; and localities known as the hot-beds of disease must be cleansed from all abominations.

“Many other important sanitary measures might be mentioned, were their necessity not so obvious. This much, however, I would here strenuously assert. All nuisances, whether public or private, must be abated, and vested rights and individual interests must give way to the health of communities. On these points, ‘*salus reipublicæ*’ is ‘*suprema lex*’; and, as on such questions there can be no mistake, there ought assuredly to be no compromise.”

The following Table shows the mortality from Cholera for 1848-9, and the annual mortality from all causes during 1838 to 1844; with the elevation of the dwellings above high water-mark, the average annual value of houses, and the average cost of house-room, in the districts of London, supplied by the nine Water Companies included in the foregoing diagram, with the several districts in the above group:

Water Companies which supply the several Groups of Districts.	Sources of Water Supply.	Deaths from Cholera to 10,000 Persons living.	Annual Mortality from all Causes to 10,000 Persons living—1838-44.	Average elevation in feet of the Dwellings above high water mark.	Density of Population.		Average Annual Value of Houses—1842-43.	Average Value of House-room to each Person.	
					Persons to an Acre—1849.	Persons to each Inhabited House—1841.		Annually.	Weekly.
	ALL LONDON.....	66	252	39	30	7.4	£ 40	£ 5.595	s. d. 2 2
East London	River Lea	69	271	23	69	6.7	23	3.497	1 4
New River and East London	Rivers Anwell and Lea	29	197	55	13	5.9	25	4.397	1 8
New River	Rivers Anwell and Lea	48	260	54	100	8.1	51	6.638	2 7
New River, Hampstead, and West Middlesex	{ Rivers Anwell and Lea, by Springs on the hill at Hampstead, and by the Thames at Hammersmith. }	23	222	80	60	8.8	41	4.871	1 10
Grand Junction	Thames at Kew Bridge	10	201	56	58	9.1	116	13.331	5 1
Grand Junction, West Middlesex, and Chelsea	{ Thames at Kew Bridge, Hammersmith, and Battersea. }	38	228	12	10	6.6	33	5.070	1 11
West Middlesex	Thames at Hammersmith	17	234	118	46	9.5	68	7.471	2 10
Chelsea	Thames at Battersea	56	257	9	66	8.0	41	5.309	2 0
Southwark	Thames at Battersea	156	249	10	9	6.5	26	4.133	1 7
Southwark and Lambeth ..	{ Thames at Battersea and at Waterloo Bridge. }	131	249	2	37	6.4	26	4.229	1 7
Southwark and East Kent..	{ Thames at Battersea, and River Ravensbourne, near Deptford Common. }	268	277	0	18	5.8	23	4.238	1 8
East Kent	{ River Ravensbourne, near Deptford Common. }	71	218	12	6	6.5	23	3.704	1 5
DISTRICTS IN THE ABOVE GROUPE.									
East London	Poplar	90	241	10	15	6.2	44	7.360	2 10
	Stepney	49	242	16	93	6.3	20	3.319	1 3
	Bethnal Green	95	239	36	108	6.3	9	1.480	0 7
	St. George's-in-the-East	49	289	15	170	6.9	32	4.753	1 10
New River and East London	Whitechapel	71	290	28	198	8.1	26	3.388	1 4
	Hackney	29	197	55	13	5.9	25	4.397	1 8

	25	200	88	25	6.6	35	5.494	2	1
{ Islington	23	222	80	60	8.8	41	4.871	1	10
{ Pancras	23	222	80	60	8.8	41	4.871	1	10
{ Paddington, Sub-district*	9	197	76	32	7.3	64	9.349	3	7
{ Hanover-square, and May-fair ditto†	6	179	49	66	9.5	153	16.754	6	5
{ St. James', Westminster	16	212	43	209	10.4	128	12.669	4	10
{ Kensington, &c., Sub-district*	38	228	12	10	6.6	33	5.070	1	11
{ Marylebone	17	227	100	101	9.8	71	7.586	2	11
{ Hampstead	8	202	350	6	7.2	40	5.804	2	3
{ Chelsea	55	287	12	60	7.1	29	4.210	1	7
{ Belgrave Sub-district†	31	194	19	61	8.0	67	8.875	3	5
{ Westminster	71	260	2	74	8.8	36	4.189	1	7
{ Bermondsey	194	264	0	65	6.2	18	3.077	1	2
{ St. Olave	183	281	2	159	7.9	35	4.559	1	9
{ Wandsworth	111	198	22	4	6.2	29	4.839	1	10
{ Lambeth	115	233	3	39	6.5	28	4.389	1	8
{ St. Saviour	166	292	2	165	7.1	36	5.291	2	0
{ St. George's, Southwark	168	267	0	193	7.0	22	3.318	1	3
{ Newington	145	232	2	102	5.8	22	3.788	1	5
{ Camberwell	102	197	4	12	5.8	25	4.508	1	9
{ Rotherhithe	268	277	0	18	5.8	23	4.238	1	8
{ Greenwich	81	238	8	21	6.8	22	3.379	1	4
{ Lewisham	36	173	28	2	5.8	27	4.824	1	10
New River									
New River, Hampstead, and West Middlesex									
Grand Junction									
Grand Junction, West Middlesex, and Chelsea									
West Middlesex									
Chelsea									
Southwark									
Southwark and Lambeth ..									
Southwark and East Kent ..									
East Kent									

Note.—In some few instances a *small* part of a district is supplied by other Water Companies than those against which it is grouped in this Table. In other instances the supply is imperfect, or by pumps and by ditches.

* For registration purposes, Paddington is united with the sub-districts of Kensington Town, Brompton, Hammersmith, and Fulham, under the name of Kensington.

† The district of St. George, Hanover-square, comprises the sub-districts of Hanover-square, May-fair, and Belgrave.

The influence exercised by the quality of the supplied water over the course and mortality of Cholera is indicated in the following summary remarks :

Grand Junction Company.—The mortality from Cholera was at the rate of 10 in 10,000 inhabitants. The lowest rate was 6, the highest, 16 in 10,000.

West Middlesex Company.—The mortality from Cholera was at the rate of 17 in 10,000 inhabitants. In Hampstead, the mortality was 8 in 10,000.

Chelsea Water Company.—The mortality from Cholera was at the rate of 56 in 10,000 inhabitants ; in the Belgrave sub-district, the deaths from Cholera were 31, in Chelsea 55, in Westminster 71, in 10,000 inhabitants.

Southwark Company.—The mortality was at the rate of 156 in 10,000. In Wandsworth the mortality was 111, in St. Olave 183, in Bermondsey 194, in 10,000.

Lambeth Water Company and Southwark Water Company.—The mortality from Cholera was at the rate of 131 in 10,000. In the district of Lambeth the mortality was 115, St. Saviour 166, St. George, Southwark, 168, Newington 145, Camberwell 102, in 10,000.

Southwark and East Kent Water Works Companies.—The mortality from Cholera was at the rate of 268 in 10,000 inhabitants.

East London Water Company.—The mortality from Cholera was at the rate of 69 in 10,000 inhabitants ; and 49 in Stepney, 95 in Bethnal-green.

New River Water Company.—The mortality from Cholera was at the rate of 48 in 10,000 inhabitants ; the mortality was least in Clerkenwell (19), near the head reservoir ; greatest (96), in West London, on the edge of the Thames.

Arranging the 12 groups of districts in the order of mortality, it appears that the mortality from Cholera was lowest, or 10, 17, and 23, to 10,000 inhabitants, in districts which have their water chiefly from the Thames so high as Hammersmith and Kew. Upon the other hand the mortality was highest, or 131, 156, and 268 to 10,000 inhabitants, in the districts which have their water from the Thames so low as Battersea and the Hungerford Bridge. The districts of the New River occupy an intermediate station.

The Registrar-General observes on this subject :

“ For those unacquainted with the Thames, it is necessary to state, that the contents of the greater part of the drains, sinks, and water-closets of 2,200,000 people, after stagnating in the sewers, are poured daily into its waters, which spread over more than 2,000 acres in the midst of the inhabited parts, and are incessantly agitated by the tides, which ascend to Teddington, and carry the matters in the thickest waters below London-bridge, a mile and a half above Battersea-bridge, twice a day. The large Chelsea sewers open into the Thames above the point at which the water is taken up from the Thames by the Southwark and Chelsea Water Companies; but the suction-pipe of the Chelsea Company extends into the centre of the stream. The water, it is said, is filtered by all the Thames Water Companies.”

We frequently hear it stated that physical and moral disease may be produced by one and the same cause; that the locality of fever and pestilence will ever be found to be associated with crime, or with vice in its most aggravated forms; that to improvident habits may be traced that poverty and wretchedness which are the great causes of disease; and that the conditions arising from these circumstances will furnish an accurate explanation of the susceptibility to every species of pestilence. Such views, to be worthy of acceptance, should be shown to rest on facts; if they have not this foundation, they will fail to make the desired impression on those to whom they are specially addressed, and whose benefit it is the object to promote. In this respect, how stands it with Cholera? Does the class among whom Cholera has been most rife, yield also the greatest number of criminals, help most to fill our workhouses, send daily most victims to hospitals, and assist in the greatest degree to people our lunatic asylums? We shall examine, in order to test this matter, ten different classes of occupations, not selected, but taken somewhat indiscriminately, for the purpose of investigating a variety of conditions of life. The following Table shows the rate of deaths from Cholera in London to the number living under each occupation; and also the rate in the same class and population of inmates of gaols, and workhouses, lunatic asylums, and hospitals, in England. In order to assist the reader, we have placed index figures by the side of the numbers in each column, showing the ratio in which they stand to one another; for instance, mariners stand first in point of liability to Cholera, ninth in respect to crime, seventh as to those causes leading them to seek a refuge in workhouses, ninth as to lunacy, and fifth as to sickness or accident :

Occupation. (Males.)	Rate of Deaths by Cholera to Population.	Rate of Inmates of Gaols to the Population in 1841.	Rate of Inmates of Workhouses to Population, 1841.	Rate of Inmates of Lunatic Asylums to Population, 1841.	Rate of Inmates of Hospitals to Population in 1841.
Mariners . . .	(1) 24	(9) 1,069	(7) 834	(9) 1,443	(5) 548
Weavers . . .	(2) 36	(2) 168	(1) 121	(2) 377	(4) 509
Labourers . . .	(3) 65	(1) 111	(2) 138	(3) 779	(3) 415
Porters . . .	(4) 131	(4) 314	(6) 406	(6) 995	(2) 373
Carpenters . . .	(5) 155	(7) 632	(5) 393	(8) 1,265	(7) 1,074
Shoemakers . . .	(6) 162	(5) 327	(3) 217	(7) 1,077	(8) 1,193
Gentlemen . . .	(7) 200	(10) 2,691	.. ..	(4) 870	.. ..
Tailors . . .	(8) 244	(3) 308	(4) 246	(5) 971	(6) 961
Pensioners . . .	(9) 333	(8) 1,067	.. ..	(10) 2,669	.. ..
Clerks . . .	(10) 477	(6) 450	(8) 868	(1) 373	(1) 191

The above Table would show, among weavers and labourers, a great susceptibility to the evils noticed in our preliminary remarks ; but, generally speaking, it will hardly bear the construction that vice and Cholera are necessarily connected ; at the same time, however, it presents an interesting view of the physical, economical, and moral health of the people, so far as the specified occupations are concerned.

Of 1000 deaths from Cholera, taken from the bills of mortality for three weeks, 280 occurred in men, 331 in women, 209 in boys, and 180 in girls. Of the women, 116 were wives, 82 widows, and 30 spinsters ; and of the others not so classed, 11 were servants, 8 prisoners, 4 dressmakers, 4 laundresses, 3 ladies, 3 paupers, and the other 18 are distributed among 8 occupations. Among the men, the highest numbers appertaining to any one class are respectively, 41 labourers, 18 mariners, 13 carpenters, 12 shoemakers, 9 tailors, 9 weavers, 7 pensioners, 7 clerks, 6 porters, and 3 gentlemen ; leaving 155 deaths to be apportioned to 95 occupations, or one-sixth to each. Of the wives, the highest numbers are among those whose husbands were labourers and shoemakers (31 and 9 respectively) ; and of the children, 39 are sons of labourers, and 33 daughters of the same class ; the highest numbers, as it respects children, standing in equal ratios to those of the men. We must not, however, draw an absolute conclusion from the above premises, and infer that labourers are more subject to Cholera than any other class of the population. To arrive at accurate results, the proportion of any class to the whole popula-

tion must be taken into account; and this has been done for twenty different occupations, in the ensuing Table.

Description.	Number of Deaths by Cholera.	Number living of each description in England in 1841.
	in 1,000	
Men	280	3,897,336
Women	331	4,223,780
Boys	209	3,430,181
Girls	180	3,448,857
FEMALES.		
Servants	11	712,493
Prisoners	8	9,865
Dressmakers	4	89,079
Laundresses	4	45,019
Paupers	3	69,810
Ladies	3	303,583
MALES.		
Labourers	41	307,535
Mariners	18	288,630
Carpenters	13	127,804
Shoemakers	12	165,881
Tailors	9	96,142
Weavers	9	58,991
Pensioners	7	21,349
Clerks	7	47,732
Porters	6	23,891
Gentlemen	3	118,412
All Occupations to the } 20th of October. . }	14,538	7,094,186

From this it would appear, that occupation exercises little influence over the liability to Cholera. But in order to test this point still further, we shall take a wider range, and give the following statement, constructed by Dr. W. A. Guy, Professor of Forensic Medicine, at King's College, and Physician to King's College Hospital. It is an abstract of the occupations of 4,312 males, fifteen years of age and upwards, who died of Cholera in London during the years 1848-9; together with a rough approximation to the ratio which the deaths bear to the living. This ratio is obtained, in the case of tradesmen, by dividing the number following each trade (as given in the Post-office Directory for 1840) by the

number of deaths; and in the case of all the other classes, by dividing the number of the living in each class, as returned by the Census of 1841, by the number of deaths. In the case of such of the working class as follow occupations of the same name with that borne by tradesmen, the number of the living is obtained by subtracting the number of tradesmen from the total given in the Census, such total comprising both the employers and the employed. The Table comprises the inmates of workhouses, hospitals, and asylums, who were returned as having definite occupations.

	Number of Deaths.	Ratio.		Number of Deaths.	Ratio.
Gentlemen, and men of independent means	135	1 in 200	Cabinet makers, Carpenters, Upholsterers, Undertakers, &c.	14	1 in 100
Clergymen of the Church of England (3), and ministers of other persuasions (3)	6	1 in 213	Cheesemongers	13	1 in 51
Physicians, Surgeons, and General Practitioners	16	1 in 265	Chemists and Druggists	7	1 in 86
Magistrates, Barristers, Conveyancers, and Attorneys	13	1 in 375	Chinneysweeps	2	..
Learned Professions	35	1 in 297	China, Glass, and Earthenware Dealers	5	1 in 51
Architects, Civil Engineers, and Surveyors	11	1 in 115	Clerks, Accountants, &c.	100	..
Actuaries, Accountants, Bill and Share brokers, Editors, Reporters, &c.	14	1 in 118	Coffee-shop keepers	3	1 in 85
Merchants	11	1 in 348	Coal Merchants	6	1 in 85
Officers in the Army and Navy	11	..	Corn Chandlers	5	1 in 85
Other Professions	8	..	Cowkeepers, Dairy-men, Milkmen	8	1 in 20
TRADESMEN (MASTERS), &c.			Custom-house Officers	11	..
Agents	12	1 in 49	Drapers, Hosiers, Haberdashers, &c.	17	1 in 71
Auctioneers	1	1 in 266	Dyers	2	1 in 112
Bakers	8	1 in 133	Eating-house Keepers	3	1 in 36
Blacksmiths, Whitesmiths, Locksmiths, &c.	2	1 in 65	Egg Merchants	5	1 in 6
Brewers	1	1 in 160	Excise Officers	7	..
Bricklayers and Builders	14	1 in 39	Farmers	8	..
Bookbinders, Booksellers, Stationers, Printsellers, &c.	14	1 in 96	Fishmongers	11	1 in 20
Brokers	6	1 in 170	Foremen	12	..
Butchers	8	1 in 123	Fruiters and Greengrocers	12	1 in 28
Cab and Omnibus Proprietors	5	..	Gardeners	4	..
			General Dealers	32	..
			Grocers	20	1 in 65
			Hatters and Furriers	3	1 in 143
			Ironmongers	7	1 in 53
			Jobmasters, Livery-stable Keepers	5	1 in 37
			Master Mariners	25	..
			Musicians	4	..
			Oilmen	13	1 in 46
			Painters and Glaziers	3	1 in 142
			Paper makers	2	1 in 15

	Number of Deaths.	Ratio.		Number of Deaths.	Ratio.
Pastrycooks	2	1 in 127	Dock-labourers	10	..
Pawnbrokers	4	1 in 64	Draymen	13	..
Printers	4	..	Drovers	6	1 in 54
Poulterers	3	1 in 32	Dustmen and Scavengers....	6	1 in 39
Publicans, Licensed Vic- tuallers, Beersellers}	42	1 in 63	Dyers	7	1 in 230
Saddler	1	1 in 250	Engineers	44	1 in 94
Sailmakers	2	1 in 30	Engravers	9	1 in 199
Salesmen	7	..	Farriers	12	1 in 106
Schoolmasters	7	..	Firemen	2	1 in 80
Shoemakers	8	1 in 120	Fishermen	6	1 in 93
Tailors	6	1 in 233	Footmen and Man-servants ..	25	1 in 1572
Travellers	19	..	Founders	10	1 in 12
Tobacconists	6	1 in 75	French Polishers.....	6	1 in 157
Turners	2	1 in 50	Furriers	6	1 in 116
Wharfingers	2	1 in 55	Gardeners	48	1 in 93
Wheelwright	1	1 in 80	Gas-fitters	8	1 in 54
Wine Merchants	5	1 in 170	Glass-workers, Glass-cut- ters, &c.}	8	1 in 126
Other trades	34	..	Glass-blowers	3	..
ARTIZANS AND LABOURERS.			Glove-makers	3	1 in 98
Artists, Print colourers, &c...	8	..	Grooms and Hostlers	37	1 in 75
Bakers	52	1 in 148	Gun-makers	7	1 in 143
Ballast-heavers	7	1 in 24	Hairdressers	13	1 in 154
Bargemen	18	1 in 126	Hatters	26	1 in 92
Barmen, Potmen, Potboys...	8	..	Hawkers, &c.	67	1 in 22
Basket-makers	7	1 in 96	Japanners	2	1 in 187
Beadles	5	..	Jewellers, Goldsmiths, and Silversmiths.....}	6	1 in 583
Beggars, Tramps, &c.....	6	..	Labourers	756	1 in 65
Bricklayers	47	1 in 143	Lamplighters	6	..
Brickmakers	12	1 in 67	Last-makers	2	1 in 80
Brass-finishers	3	1 in 318	Letter Carriers and Postmen	6	..
Boat-builders	3	1 in 166	Lightermen	20	1 in 75
Bookbinders	18	1 in 150	Lithographers	3	1 in 48
Brushmakers	11	1 in 153	Locksmiths and Bellhangers	3	1 in 117
Butchers	32	1 in 174	Masons	17	1 in 204
Cabinet-makers and Uphol- sterers	70	1 in 89	Matmaker	1	1 in 192
Cabmen	35	..	Mathematical Instrument makers	2	1 in 120
Carmen, Carriers, and Carter	52	1 in 74	Porters, Messengers, and Errand-boys	99	1 in 131
Carpenters and Joiners....	111	1 in 155	Milkmen and Cowkeepers ..	14	1 in 143
Carvers and Gilders	9	1 in 219	Modellers	3	1 in 41
Chimney-sweeps	7	..	Musicians	6	..
Ditto (Masters and Men)..	9	1 in 109	Millwrights	2	1 in 266
Cigar-makers	4	..	Packers	2	1 in 151
Coachmen and Cabmen	57	1 in 95	Painters, Plumbers, and Glaziers	73	1 in 144
Coachmakers	16	1 in 262	Paper makers and Stainers ..	8	1 in 136
Coalporters and Coalheavers..	53	1 in 32	Plasterers	20	1 in 129
Compositors	21	..	Pensioners	64	..
Cooks and Confectioners ...	11	1 in 106	Policemen	24	1 in 208
Convicts	36	..	Polishers	4	1 in 36
Coopers	28	1 in 124	Potters	6	1 in 52
Corkcutters	2	1 in 279	Printers (including Com- positors	61	1 in 105
Curriers and Leather-dressers	24	1 in 95			
Cutlers	6	1 in 106			
Comb-makers	3	1 in 148			

	Number of Deaths.	Ratio.		Number of Deaths.	Ratio.
Rag-sorters	2	1 in 54	Toymakers	4	1 in 76
Railway Guards	10	..	Turners	18	1 in 83
Rope-makers, Cord and Twine Spinners, &c. }	12	1 in 88	Type-founders	1	1 in 390
Sailors (including Green- wich Pensioners	299	1 in 24	Umbrella makers	3	1 in 176
Saddlers, Harness, and Whip-makers	15	1 in 133	Undertakers	2	1 in 325
Sawyers	33	1 in 90	Waiters	14	..
Scalemakers	2	1 in 60	Watchmen	7	..
Shipwrights	20	1 in 105	Watermen	27	1 in 61
Silk-dressers	2	..	Ditto (Cabstands)	2	..
Shoemakers	151	1 in 162	Warehousemen	8	1 in 472
Shopmen	35	..	Watchmakers	11	1 in 364
Smiths	62	1 in 105	Weavers	102	1 in 36
Soldiers	62	..	Wheelwrights	8	1 in 294
Stokers	13	..	Window-blind makers	3	1 in 82
Sugar-bakers	4	1 in 152	Wine-coopers	3	1 in 171
Tailors	80	1 in 244	Wharfingers	2	1 in 85
Tanners	22	1 in 39	Wire-drawers	3	1 in 61
Tallow Chandlers	2	1 in 430	Woolsorters	4	..
Tin-plate Workers	7	1 in 178	Other occupations	75	..
Tobacco-pipe Makers	6	1 in 75			
Toll-collectors	3	1 in 56			
				4342	..
			Subtract as entered twice ..	30	..
				4312	..

No attempt is made to correct for increase or decrease of population since 1841; and the persons of the several occupations returned in the metropolis by the Census Commissioners do not include those of Wandsworth, Hampstead, or Lewisham.

To assist the reader in tracing the course of the epidemic in respect to *season*, we subjoin the following diagram, which exhibits at one view the course of the Cholera from October 14th, 1848, to October 13th, 1849, compared with the Plague of 1665, and the deaths from all causes (Cholera excepted) for the same period together with the indications of the thermometer and barometer. This presents very many points of interest, not the least of which is the remarkable coincidence between the course of the Cholera and that of the Plague, excepting only as to virulence. In this chart, the *thin* line is meant to represent the course of the Cholera; the *thick* line that of the Plague; the *double* line the deaths from all causes; the *thin-dotted* line the readings of the barometer; and the *thick-dotted* line those of the thermometer.

This table is copied from the *Medical Times* of November 3rd, 1849, and forms part of a valuable communication by Mr. B. Smith, to which the reader is further referred.





Cholera appears to be more fatal to females than to males. Of 14,497 deaths from Cholera, there are 6,914 males, and 7,583 females,—giving a majority of the latter by 669; and reversing the law which generally holds in respect to other diseases. But when we consider the conditions of age and sex together, further peculiarities appear. Of the total number of persons cut off by Cholera, 4,447 die from 0 to 15 years of age; 8,629 from 15 to 65; and 421 from 65 and upwards. This appears to be a deviation from the law regulating the mortality of zymotic diseases generally; according to which a majority of deaths occur from 0 to 15; but the same deviation is observed as to this disease in all countries and in all climes. To specify more particularly, however, the following table gives the various ages relatively to sex, and the population of various ages in Middlesex, to every 10,000 persons living. (The population given is that at the periods from 0 to 20, and from 20 years of age and upwards.)

Age.	Deaths. Male.	Population.	Deaths. Female.	Population.	Total Deaths.	Population.
0	1,103	363,430	934	385,025	2,037	748,455
5	703		633		1,336	
10	381		317		698	
15	726		650		1,376	
25	990		1,110		2,100	
35	949	513,526	1,230	611,695	2,179	1,125,221
45	891		993		1,884	
55	650		834		1,484	
65	384		598		982	
75	120		252		372	
85	9		26		35	
95	...		...		...
?	8		6		14	

According to this table, the periods of liability seem to be, as to age for both sexes, at 0, 25, 35, 45; and, *as respects females*, 55; and the ages of 10, 75, and 85, the least liable; as it respects males, the deaths are above those of females, at the ages of 0, 5, 10, and 15; from which latter period the deaths of females invariably preponderate, with the differences respectively of 120, 281, 102, 184, 214, 132, and 17. By the deaths, at each age, however, according to population, the following appears to be the result:

1 Male	dies in 106.6 under 20 years of age.
1 „	„ in 146.8 above 20 „ „ and upwards.
1 Female	„ in 124.6 under 20 „ „
1 „	„ in 136.3 above 20 „ „
1 of both sexes	„ in 115.6 under 20 „ „
1 „	„ in 140.9 above 20 „ „

And hence the ratios of liability would be, first, males under 20 years of age; second, both sexes, under 20; third, females under 20; fourth, females above 20 and upwards; fifth, both sexes above 20 and upwards; and sixth, males above 20 and upwards.

As to the duration of the disease, it appears that of all the deaths, 212 took place within one hour from the period of attack; 6,651 under one day, 2,461 in one day, 1,045 in two days, 306 in seven days, and 7 in twenty-eight days. In respect to sex, the duration of attack was as follows :

Period.	Males.	Females.	Total.
0 hour	136	76	212
6 „	950	809	1,758
12 „	1,575	1,661	3,236
18 „	636	809	1,445
Total under 1 day	3,297	3,354	6,651
1 day	1,109	1,352	2,461
2 „	486	559	1,045
3 „	386	438	824
4 „	244	269	513
5 „	207	195	402
6 „	104	118	222
7 „	139	167	306
8 „	45	65	110
9 „	30	39	69
10 „	72	106	178
14 „	43	70	113
21 „	12	21	33
28 „	4	3	7
? „	736	827	1,563

It has been shown that there was a remarkable coincidence in the course of Cholera in 1848-9, and the plague; and not only this, “for,” says Mr. Smith, “during the four plagues of 1603, 1625, and 1665, as compared with the Cholera, the same phenomenon appears.” The following is the Table subjoined :—
(*Medical Times*; *ibid.*)

TABLE SHOWING THE NUMBER OF DEATHS WEEKLY, AS WELL OF ALL DISEASES AS OF THE PLAGUE, IN THE YEARS 1603, 1625, 1636, AND 1665, AND OF THE CHOLERA IN THE SAME WEEKS OF 1849.

Weeks.	1603.		1625.		1636.		1665.		1849.	
	Total.	Plague.	Total.	Plague.	Total.	Plague.	Total.	Plague.	Total.	Cholera.
June 2	114	30	395	69	339	77	399	17	895	9
" 9	131	43	434	91	345	87	405	43	971	32
" 16	144	59	510	161	381	108	558	112	912	42
" 23	182	72	640	239	304	79	611	168	985	49
" 30	267	158	942	390	352	104	684	267	1217	124
July 7	445	263	1222	593	215	81	1006	470	1070	132
" 14	612	424	1781	1004	372	104	1268	727	1369	339
" 21	1186	917	2850	1819	365	120	1761	1089	1741	678
" 28	1728	1396	3583	2471	423	151	2785	1843	1931	783
August 4	2256	1922	4517	3659	491	206	3014	2010	1967	926
" 11	2077	1745	4855	4115	538	253	4030	2817	1909	823
" 18	3054	2713	5205	4463	638	321	5319	3880	2230	1230
" 25	2853	2539	4841	4218	787	439	5568	4237	2456	1272
Sept. 1	3385	3035	3897	3344	1011	638	7496	6102	2796	1663
" 8	3078	2724	3157	2550	1069	650	8452	6988	3183	2026
" 15	3129	2818	3178	2550	1306	865	7690	6544	2865	1682
" 22	2456	2195	1994	1351	1229	775	8297	7165	1981	839
" 29	1961	1732	1236	852	1403	928	6460	5353	1611	434
Oct. 6	1831	1641	833	538	1405	921	5720	4929	1290	288
" 13	1312	1149	815	511	1302	792	5068	4327	1075	110
" 20	766	642	651	331	1002	555	3219	2665	1028	41
" 27	625	508	375	184	900	451	1806	1421	902	25
Nov. 3	735	394	357	89	1300	888	1388	1031	.....	.....
" 10	545	442	319	92	1104	715	1787	1414	.....	.....
" 17	384	251	274	48	950	573	1359	1050	.....	.....
" 24	198	105	231	27	857	476	905	652	.....	.....
Dec. 1	223	102	190	15	614	321	544	333	.....	.....
" 8	163	55	181	15	459	167	428	210	.....	.....
" 15	200	96	168	6	385	85	442	243	.....	.....
" 22	168	74	157	1	...	...	525	281	.....	.....
Total.....	37,294	30,561	51,528	35,403	23,359	10,400	97,306	68,596		

The author of the above remarks, that “Much has been said as to the dependence to be placed on the records of the plague, and the correctness of the old bills of mortality; but from a glance at them, as here given, they seem to bear internal evidence of an approximation to the truth.” And Heberden says:—“The agreement of these bills with each other does alone carry with it a strong proof that the numbers under the several articles are by no means set down at random; and that such registers, taken together, and considered on an extensive scale, must be allowed to constitute a very unexceptionable basis for medical reasoning.”

A very prevalent notion is here worth alluding to. It has frequently been said, that while any pestilence is raging, other diseases (and especially those of the zymotic class), are found partially to disappear. The following Table, as given by the authority mentioned above,—Mr. Smith, from whose labours we have so largely drawn, and the value of which we here acknowledge,—will show how far this idea is borne out by the facts :

TABLE SHOWING THE NUMBER OF DEATHS FROM CHOLERA, TYPHUS, AND ALL ZYMOTIC DISEASES, EXCEPT CHOLERA, IN THE TEN YEARS 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849; AND THE DEATHS FROM ALL ZYMOTIC DISEASES IN 1849, EXCEPT CHOLERA AND DIARRHOEA, FOR THE WEEKS ENDING APRIL 7 TO OCTOBER 20.

NOTE.—C, Stands for Cholera. T, for Typhus. "All" all Zymotic Diseases except Cholera. In the years from 1840 to 1847 the Weekly Average is given on each Quarter's Return. In the years 1849 and 1849 the real numbers are given.

Weeks ending	1840.			1841.			1842.			1843.			1844.			1845.			1846.			1847.			1848.			1849.				
	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		C.	T. All.		All without Cholera and Diarrhea.		
	C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.		C.	T.
April 7	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	60	274	5	38	216	208	
" 14	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	1	60	274	2	43	239	225
" 28	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	2	62	252	1	46	247	229
May 5	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	2	67	236	1	34	232	216
" 12	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	2	75	269	4	36	244	220
" 19	3	25	160	08	20	130	6	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	1	73	262	3	33	203	192
" 26	3	25	160	08	20	130	6	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	79	269	1	42	233	220	
June 2	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	66	286	5	43	228	209	
" 9	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	1	77	277	9	23	200	184
" 16	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	2	67	292	22	38	229	207
" 23	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	5	69	284	42	45	209	173
" 30	3	25	160	08	20	130	5	20	123	6	53	186	7	35	188	2	24	145	7	28	137	3	44	162	...	3	67	310	49	46	228	211
July 8	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	7	65	331	152	46	241	195
" 15	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	9	59	310	335	48	291	203
" 22	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	21	75	369	678	53	324	193
" 29	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	26	77	479	783	37	390	166
Aug. 4	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	21	55	413	926	39	382	203
" 18	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	19	66	433	823	54	359	186
" 25	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	17	61	428	1230	46	363	175
" 25	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	7	87	356	1272	77	410	200
Sept. 1	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	7	63	390	1663	47	406	172
" 8	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	7	89	411	2026	52	443	171
" 15	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	6	63	368	1682	66	477	197
" 22	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	7	58	386	830	72	452	214
" 29	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	4	69	391	434	72	348	165
" 6	4	23	171	2	23	142	8	24	166	5	34	200	4	33	246	2	21	183	15	31	234	7	69	305	...	13	65	417	288	53	320	185
Oct. 13	5	24	189	2	22	155	1	28	160	5	35	226	4	30	230	8	28	209	1	48	168	1	98	444	...	30	80	418	110	47	262	171
" 20	5	24	189	2	22	155	1	28	160	5	35	226	4	30	230	8	28	209	1	48	168	1	98	444	...	45	65	348	41	63	236	185

The result to be deduced from this Table is as follows :—

	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849
Cholera	61	41	120	80	66	32	221	104	273	13,554
Typhus	695	366	652	1,235	977	662	530	1,734	1,974	1,385
All Zymotic Diseases except Cholera } 2,772	2,298	2,644	5,670	3,904	4,865	5,393	7,264	9,816	8,669	
										or, Deduct Diarrhœa beyond the average of five years. . . } 1,779
										6,890

Thus, the average of deaths from typhus being, for the two years, 1,021, the deaths in 1849 were over the average by 364, but under those in the years 1847 and 1848 by 349 and 589 respectively. The average of deaths from all zymotic diseases, excepting Cholera, being, in the ten years, 5,151, the deaths in 1849 were 1,739 above that average, but under the average, in 1847 and 1848, by 374 and 2,926 respectively. Hence the assumption would appear to be groundless, that other diseases are in abeyance while the Cholera is prevalent ; for though 1849 does show a decrease both as to typhus and all zymotic diseases, as compared with 1847 and 1848, and that, notwithstanding increase of population, yet there is not so much difference but that it may be accounted for by the fact of the Cholera taking off a great number who would otherwise have been subjected to other zymotic diseases. The vast increase of deaths, however, from typhus and other zymotic diseases, in the two years previously to the ravages of Cholera, is particularly worthy of attention.

Such were among the leading phenomena attending the course of an epidemic disease which, in its virulence in the metropolis of England, has had no parallel in modern times. In considering its primary causes, the scientific world have been baffled ; and for this reason, perhaps, the religious world have stamped it as a dispensation of Providence, inexplicable on the principles of human philosophy ; while others, too glad to rid themselves of any responsibility in the matter, have readily fallen in with the latter notion, and have vied with the religious professor in declaiming against the temerity of all theorizers. But more than this. They have evaded the question, also, as to secondary causes ; and, as

if they were peculiarly jealous that the beneficent Author of life should monopolize the credit of all fever and pestilence to himself, they have stood forth, in the midst of fetid swamps and reeking charnel-houses, denying that putrescence and corruption are inimical to health. It is not long since the editor of a religious journal expressed the opinion, that graveyards in the midst of a crowded city might rather be considered a boon, since they left an open space, whence *pure* air might be received by the inhabitants of the adjoining buildings. Oh, then, that we had more graveyards, or less of professedly religious patriotism! Now this course of procedure is, we think, sufficient reason, in concluding this inquiry, for drawing the attention of our readers to the subject of intra-mural burials. How far their connection with Cholera is to be traced, may safely be left to the judgment of the public. It appears to be decided, that placing a dead body in a grave, and covering it with a few feet of earth, do not prevent the gases generated by decomposition, together with the putrescent matter which they hold in suspension, from permeating the surrounding soil, and escaping into the air above and the water beneath. This escape takes place with so much force, that the gas often bursts even a leaden coffin; and though a part is generally absorbed by the soil, yet much is diffused in every direction, but chiefly upwards. Mr. Leigh, a chemist at Manchester, says:—"If bodies were interred eight or ten feet deep in sandy or gravelly soils, I am convinced little would be gained by it; the gases would find a ready exit from almost any practicable depth." And Dr. Playfair estimates that the amount of the gases evolved annually from the decomposition of 1,117 corpses per acre, which is far short of the number actually interred in the metropolitan graveyards, is not less than 55,261 cubic feet. Now, as 52,000 interments take place annually in the metropolis, according to this ratio, the amount of gases emitted is equal to 2,572,580 cubic feet; the whole of which, beyond what is absorbed by the soil, must pass into the water below, or the atmosphere above. When we consider that decaying or putrescent matter is capable of communicating its qualities to other matters, causing them to exhibit the same conditions, we may estimate the result of a whole population of a crowded metropolis inhaling the gases here evolved. And what, then, are likely to be the results when, "in the metropolis, on

spaces of ground not exceeding in all 218 acres, closely surrounded by the abodes of the living, crowded together in dense masses, upwards of 50,000 dead bodies are buried every year?"

It appears, indeed, that Cholera was unusually prevalent in the immediate neighbourhood of these burial-grounds, and Dr. Sutherland makes the same observation. He says:

"I witnessed several outbreaks of Cholera in the vicinity of graveyards, which left no doubt on my own mind as to the connection between the disease itself and such local influences. Two instances occurred at Bristol, the particulars of which I reported at the time to the General Board of Health. The results in both were most disastrous. Long-continued contact with the morbid influences proceeding from graveyards and other nuisances appeared to have produced such a degree of susceptibility, that, as soon as the epidemic touched the locality, the people fell before it. There is evidence to prove that a large fatality took place also during the last Cholera epidemic in the neighbourhoods immediately adjoining the graveyards of the metropolis. It is not always easy to separate the effect of each specific cause of disease where a number co-operate, but after a most extensive experience the evidence which has come before me has produced on my own mind an abiding conviction, that the effects of many causes of unhealthiness, and that of churchyards amongst others, has been very much underrated. I have no doubt whatever that the burial-grounds, as at present constituted, are a continual source of pestilence; slow, perhaps, in its operation, and hence overlooked by ordinary observers. They are undermining the constitutional stamina of thousands of our town populations, while people are denying that they have an injurious tendency; and it is only when some epidemic comes to try it like a touchstone, that the consequence of long antecedent neglect becomes so apparent as to rivet attention and excite alarm."

Now, it appears that in Bethnal-green burial-ground alone, consisting of an area of about two acres and a half, there have been interred, since its opening in the year 1746, upwards of 56,000 dead bodies. In Bunhill-fields burying-ground, City-road, consisting of an area of less than four acres, there have been interred, from April 1713 to August 1832, according to the registry, which, however, in early years, was very imperfectly kept, 107,416 dead bodies. But in St. Paneras churchyard, one-half of which has been used as a burial-place for at least six centuries, there have been deposited the remains of more than twenty generations; and in this space of ground, which does not even now exceed four acres, and a large portion of which was considered as full to excess twenty years ago, there have been interred, since that period, upwards of 26,000 bodies.

Estimating the duration of a generation at thirty years, there

must have been interred, in the small space of 218 acres, in the last generation, a million and a half of dead bodies, and within the next thirty years more than another million and a half of the dead; that is, a large proportion of those who now people the metropolis will have to be crowded into those same churchyards, unless other and better provision for interment be made. But not to depend on the bare statement of figures, the force of which can hardly be felt, what was the actual condition of the burial-grounds in 1849, when the Cholera was raging? The following is a brief analysis of the state of the case, as reported to the General Board of Health by Dr. Milroy and others:

“**ST. ANN’S, BLACKFRIARS.**—Very limited dimensions; completely hemmed in on all sides by buildings; ground so entirely occupied that it is only by boring that the gravedigger can find out where a new grave can be opened. Some of the inmates of the houses overlooking the pauper part of the burial-ground state that they have seen skulls, with portions of the scalp and hair adhering to them, thrown out from a newly-made grave. Most of the occupants of the dwellings surrounding the churchyard complain much of offensive exhalations from it, more especially for the last two or three months; and during this time Cholera has been very prevalent among them.”

“**LOCK BURIAL-GROUND, DOVER-ROAD, SOUTHWARK,** belonging to St. George the Martyr.—The very appearance of its surface indicates that it is surcharged with human remains; yet within the last nine or ten weeks no fewer than 240 bodies have been deposited in it. I was informed by an eye-witness that sixteen coffins were recently put into one grave, one immediately after the other, that is, in the course of one hour. This was in the month of August, during the height of the epidemic. There is sometimes not more than eight or ten inches of earth between the coffin and the surface. Funeral service being performed only three days in the week, corpses are detained until the regular time of burial comes round. They are often left unburied all night, lying on the open ground.”

“**ST. GEORGE-THE-MARTYR, SOUTHWARK.**—It is closely surrounded by dwellings, chiefly of the lower sort, on three sides, and on the other side by the east end of the church. Several of the residents in the houses overlooking the churchyard complain of offensive effluvia from it, especially after rain. Three fatal cases of Cholera have recently occurred in these dwellings.”

“**BURIAL-GROUND, PARKER-ROW, DOCKHEAD.**—The depth to which a grave can be dug here does not exceed five or six feet; and yet in such a grave two and three coffins are sometimes placed. There must consequently be not more than a foot or two of earth, at most, between the top coffin and the surface. The residents in most of the houses in Parker-row, which faces the front ground (the least crowded of the two), complain very much of the exceedingly offensive effluvia from it, more especially early in the morning, and in warm foggy weather. There has been a great deal of sickness among

the inhabitants during the last three months, and several deaths from Cholera took place some weeks ago."

"TOTTENHAM-COURT-ROAD CHAPEL BURIAL-GROUND.—One of the managers of the chapel informed me that the average number of interments, in the course of a year, has been of late between 400 and 500; but there appears reason to suppose that it is considerably higher. Since the beginning of July to the present date, September 7th, 1849, 134 burials have taken place. The gravedigger admits to seven or eight coffins of adults, and to between twenty and thirty coffins of children, being deposited in one grave, the grave being only partially closed until the last coffin be put in. Many of the inmates of tenements overlooking the north division of this graveyard testify to putrid effluvia emanating from it, especially when hot weather follows rain."

"NEW BUNHILL-FIELDS, GOLDEN-LANE, ST. LUKE'S.—This graveyard is nearly surrounded on all sides by dwellings; but there is a high wall, of from twenty to twenty-four feet in height, intervening all round. Mr. Smith, surgeon, of 154, Whitecross-street, and one of the recently appointed medical officers, informs me that the neighbourhood of this burial-ground is always infested with fever; and that in the adjoining courts, within 200 yards of it, some most malignant and rapidly fatal cases of Cholera have recently occurred."

"ST. GEORGE, HANOVER-SQUARE, UNBRIDGE-ROAD.—The sexton admits it is only by boring that a spot for a grave can be found. Of course, no exact register of the precise localities where interments have already taken place has been kept. The average number of interments for several years prior to 1848 was rather more than 1,000 per annum. Last year, 1848, the number rose to 1,183 in all; and since the 1st of July of the present year to this date, September 18th, 358 have been buried in the ground. Upon making inquiries of the residents in a number of the houses that overlook this burial-ground, I found that they very generally complained of offensive effluvia perceived at certain times, and usually most after rain followed by hot weather. The medical attendants of several of those families have recommended them to leave their dwellings in consequence."

"ST. MARY'S, NEWINGTON, SURREY.—Many of the residents in the immediate neighbourhood complain of foul effluvia proceeding from this burial-ground; so much so, that at times they have been obliged to shut their windows. The nuisance has been greater of late; nor can this be wondered at, when it is known that no fewer than 436 bodies have been interred there during the last nine or ten weeks."

"NEW BUNHILL-FIELDS CEMETERY, DEVERELL-STREET, NEW KENT-ROAD.—Surrounded on three sides by dwellings. Besides the grave-yard, an immense number of burials has been made in the vaults under the chapel in the ground. The number of coffins piled up one above another has probably exceeded a thousand. On the south side of the chapel there is a spot where there is a vast accumulation of bones close to the surface. Several of the residents in Theobald's-street and Deverell-street, which run along the east

and west sides of the grave-yard, state that they have experienced offensive effluvia from the burial-ground, and several deaths from Cholera have taken place in both these streets."

"**ST. OLAVE AND ST. JOHN, TOOLEY-STREET.**—Extent very little more than half an acre: has been used for the purposes of interment since the time of Queen Elizabeth. During the present year no fewer than 386 burials have already taken place; of these 196 have been within the last twelve weeks. The grave-yard is open to Tooley-street on the south side; on the other three sides it is inclosed by buildings. As may be supposed, the ground is exceedingly full of human remains. Mr. Wright, one of the churchwardens of St. Olave, states that one of the gravediggers acknowledged to him that he had occasionally displaced one coffin, in order to make room for a deep grave at its side. The Rev. Mr. Le Breton, Curate of St. Olave's, states that on one or two occasions he has been much annoyed, and that, in consequence, he always makes a point of standing on the windward side of a grave. Several of the residents in Potter's-fields complain of foul smells from it, especially of late, when many of the burials took place near to their houses; and Mr. Viner, surgeon, of 114, Tooley-street, mentioned to me that one of the gravediggers (Kennedy by name,) whose family he attends professionally, has more than once admitted to him that the stench from a grave, even within a foot or two of the surface, has sometimes occasioned headach and vertigo; also, that he was continually exposing coffins when digging to any depth."

"**ST. GEORGE'S LUTHERAN CHURCH, WHITECHAPEL.**—I am informed, by good authority, that to such a degree was this small grave-yard crowded with corpses thirty years ago, that even then it was deemed requisite by the Incumbent of the church that it should be closed. 'So far, however, from this being done,' my informant goes on to state, 'it is a fact, that since that time more bodies have been interred there annually than before.' Several of the inmates in the houses overlooking this grave-yard complain of most offensive smells from it, especially in hot weather, and whenever the ground has been opened for interment. In one instance, the physician insisted upon the removal of the family from their residence."

"**ST. BOTOLPH'S CHURCHYARD, ALDGATE.**—"It is closely hemmed in on the east by houses. It has been long notorious that this churchyard is exceedingly full of human remains, and that it ought to have been entirely closed many years ago. A shocking catastrophe occurred here in 1841, when two men lost their lives in a grave from the poisonous exhalations issuing into it from the mass of festering corruption at the side. I should mention that the floor of the vaults has been much used as a common grave-yard, graves being dug there as in the open ground, and ordinary wooden coffins deposited in them, up to within a foot or two of the surface."

"**ST. OLAVE, SILVER-STREET, FALCON-SQUARE.**—The churchyard is of very small dimensions, and it is closely hemmed in on three sides by houses and other buildings. It is very old ground, having been used for interments since, and indeed before the great fire of London. The residents in the houses which directly overlook the churchyard concur in stating that they have often

experienced the most foul and offensive effluvia from it, especially after damp hot weather, or when a grave has been dug."

"TAVISTOCK BURIAL-GROUND, DRURY-LANE.—Has been long known to be entirely occupied in every part with human remains. Fourteen years ago it was closed, in consequence of its over-crowded and very offensive state; but it was again opened two or three years afterwards, and it has continued to be used ever since. The number of interments that have taken place here for the three years ending 31st of December, 1848, amounts to upwards of 500; and already in the present year 127 bodies have been added to this over-charged mass of corruption."

"SPA-FIELDS BURIAL-GROUND.—Five-sixths at least of this grave-yard was closed against interments four years ago, by order of the Queen's Bench, in consequence of the over-crowded state of the ground, and the complaints of the inhabitants of the neighbourhood. Since that period an additional portion of the ground, which appears to have been formerly occupied as a garden to the house of the sexton, has been taken in for the purpose of interments: but the greater part of this also is, by his own acknowledgment, quite full. In the course of last year (1848) 500 burials took place; and already, since the beginning of July last to the present date, September 8, 1849, no fewer than 176 have occurred. This burial-ground is surrounded on all sides by dwellings; it is constantly complained of by the residents in these houses; the locality is notorious for fever, and several fatal cases of Cholera have occurred there within the last few days."

"ST. GILES'S-IN-THE-FIELDS.—In order to get rid of the bones; it has been the practice in this grave-yard to dig a wide and very deep pit, into which they are cast until it becomes nearly full: it is then covered over with sod, and another pit is made to receive a like accumulation. This fact alone suffices to show how saturated the ground must have been, over and over again, with human remains: nor can we be surprised at this, considering that this churchyard is one of the very oldest in London, having originally been used as a burial-place for the lepers in London."

"ST. GILES'S CEMETERY, OLD ST. PANCRAS-ROAD.—On the 19th of October, a memorial was addressed to the General Board respecting this burial-ground, by Mr. Alexander Marshall, 49, Broad-street, Bloomsbury. In this memorial occurs the following statement:—

"The ground is only about four acres; about two acres are occupied by private family graves, one acre of which is called maiden, or unused ground. The remaining acre is crowded to a shameful and very dangerous degree. Practices of a most revolting nature are constantly used. Deep pits are left open until filled up within two or three inches of the surface. The bodies are placed one upon the other, without a particle of earth between them; and I have seen the most offensive greenish discharge running from the bodies.

"Upon questioning the gravedigger, who has been in office for the last eleven years," says Dr. Milroy, "I learned the following particulars as to the manner in which pauper interments take place in this ground. A pit, or what is called a 'double grave,' is always dug, and is kept open (boards only

being laid over the month), until it is filled with the due number of coffins, and then it is closed up with earth. A grave of this sort will hold, if it be fourteen feet deep, about eighteen adult coffins, and of course many more of children. The next grave is opened close alongside of the one just filled up, with no space of earth left between; consequently, the pile of coffins in the latter one is very generally exposed in the act of digging the new grave. This is what is technically called 'working the ground very close.' Upon asking the gravedigger if he always dug down until he came to the coffin last deposited, he answered, 'Yes, in order to make as much of the ground as possible.' I wrote to Mr. Robinson, the surgeon of the St. Pancras Infirmary, to learn if the inmates of the houses had ever perceived foul effluvia from the burial-ground. His reply was as follows:—'It will suffice to state, that in *all* of them complaints have occasionally been made of unpleasant effluvia, more particularly in that portion which was originally applied to the men's infirmary. Its basement story, however, during the past summer has been empty, and only during the last three weeks, owing to the crowded state of the female infirmary, has been temporarily occupied. On Friday week last (26th October, 1849), some of the inmates complained dreadfully of the odour from the burial-ground, and saw the gravediggers removing the coffins from their graves. From that period to Thursday last (1st November, 1849), the smell was so offensive that I was compelled to remove the parties altogether from the building.'"

"CHRIST-CHURCH, BROADWAY, WESTMINSTER.—From all accounts it appears that it has been full to repletion for a great length of time, and the general surprise is, how room can still be found for the continual additions of coffins that are put into it. The Rev. Mr. James, who has been curate of St. Margaret's, Westminster, for the last eighteen years, says he has repeatedly experienced the most disgusting smells from the open graves, and he invariably makes a point of standing on their windward side to avoid as much as possible the foul exhalations. He has seen as many as eight coffins exposed in one grave; and when I mentioned to him that a person had informed me that he had on one occasion witnessed no fewer than sixteen coffins so exposed, viz., four on each side and four at each end of the grave, Mr. James assured me that he could quite believe the statement. The testimony of the Rev. Mr. Cook, the other curate, was in accordance with that of Mr. James, and both gentlemen mentioned that the Rector of the parish, the Rev. Mr. Milman, had expressed his opinion publicly to the same effect, viz., that the ground should have been closed long before. The sexton stated that, when he entered upon his office three years ago, the churchwardens told him that the ground then was quite full, and that they must endeavour to find another place for burials. Yet ever since that time no fewer than 600 bodies have been annually interred in it, even although a very considerable portion of its area—nearly one quarter I believe—has for the last two years been entirely unused for sepulture, having been given up for the purpose of being taken into the new line of street now forming in Westminster. Of late the burials have been more numerous than ever. Nearly 140 have taken place

during the last four weeks; and the large majority of these have been made in a very small space of the ground, probably not exceeding forty or fifty feet square."

"**ST. CLEMENT DANES, PORTUGAL-STREET.**—From the concurrent testimony of the occupants of all the houses which overlook the ground, it appears to me undeniable that, for some years past, there have been perceived occasionally exhalations of mephitic effluvia, especially when the wind set in particular directions, or when the weather was close and warm before rain. They were always observed to be most offensive whenever the ground had been opened. The inmates of King's College Hospital, in Carey-street, and of the houses in Portugal-street and St. Clement's-lane, have often been obliged to shut their windows to keep out the intolerable stench that sets in upon them. Mr. Smith, house-surgeon of the hospital, states that he has frequently of late had attacks of nausea and vertigo, which he attributes to the effluvia from the graveyard. The same effects have been experienced by many of the patients in the hospital, and also of the residents in the houses in St. Clement's-lane. The case of the latter persons is especially deserving of attention; several of them have but one room for their dwelling, and the window of that room, looking out upon the burial-ground, sometimes cannot be opened for an entire day, in consequence of the horrible effluvia with which the atmosphere is charged. A very intelligent and respectable woman living in Portugal-street, informed me that she had been obliged to change her bed-room and the nursery of her children from the back to the front of the house, to escape the foetid exhalations. She particularly specified one occasion on which they were more than usually disgusting, and she had made a short memorandum of it at the time. The facts were these:—A grave was opened on the 29th of June last (1849), and a body interred therein; another body was put into the same grave on the 1st of July, a third on the 8th, and a fourth on the 15th. I should have mentioned that the back wall of a labouring man's dwelling, on the ground-floor of No. 35, Clement's-lane, forms part of the boundary of the burial ground on the west side. A few years ago there was a window in this wall looking out upon the ground, but, in consequence of the gradual elevation of the soil, from the constantly-increasing accumulation of coffin upon coffin, he was obliged to brick up the window and make a skylight to the room, the floor of which is now about six feet below the surface of the graveyard. The wall distinctly bulges in from the pressure of the incumbent earth. About six months ago it began to crack in several places; a small portion of the brickwork gave way, and earth containing some fragments of human bones fell in. Offensive as the exhalations from this burial ground have been on various former occasions, it would seem, from the unanimous testimony of all the witnesses I questioned, that never were they so horribly disgusting as on Tuesday last, 28th August, when a very deep grave had been dug, about the centre (I believe) of the ground. A large quantity of bones was exhumed; Mr. Smith ascertained, by a careful inspection of them, that the remains of at least ten different skeletons were thrown up. One or two of the skulls presented the appearance of comparatively

recent interment, all the teeth being entire, and the bones exhibiting the aspect of still retaining a portion of their gelatine. The fœtor upon this occasion was so overpowering, that even the beadle of the parish acknowledged that it was very bad. Not a window facing the graveyard could be opened, notwithstanding the oppressive heat of the day. Some of the residents were obliged to leave their houses for a time; persons passing along Portugal-street held their nostrils; a policeman standing at the door of King's College Hospital was seized with vomiting; and one of the physicians of this institution, who approached the open grave, was suddenly seized with giddiness, and would have fallen down if he had not been supported by another gentleman. Although the ground in this graveyard thus appears to be so saturated with corruption that it cannot be moved without giving forth pernicious emanations, I was informed by the beadle that three or four burials at least take place there every week."

"BURIAL-GROUNDS OF ST. BARTHOLOMEW THE GREAT.—These burial-grounds are four in number, situated on the west, the south, the north, and the north-east sides of the church, to which they immediately adjoin. They are closely hemmed in by dwellings, and, taken all together, they are among the very worst of the many bad graveyards in the city.

"1. The west or front ground is the chief one. It is considerably larger than the other three, although it does not contain above 500 square yards of superficial area. It is inclosed on two sides by the rears of the houses in Cloth-fair. Some of these houses have the privilege of having a door leading directly into the graveyard; but it is not very obvious for what purpose this privilege was granted, except that the residents might be able to use it as a substitute for a back yard, where they might deposit any spare lumber. I was informed that a small sum has been paid for the benefit of this privilege. Another person stated to me that some of the owners of the houses had been permitted for a 'consideration' to encroach upon the burial-ground. In one corner there were standing some old dilapidated furniture, an empty tar-barrel, and a quantity of rusty iron utensils. The surface of the ground I found to be strewed with fragments of human bones, intermingled with fish and fowl bones that had been thrown out of the windows, dead rats, and other refuse. The inhabitants in the over-looking houses are apt, the sexton said, to empty their basins out upon the ground, when there is no one there to prevent them.

"Graves are occasionally dug close up to the very walls and windows of the houses; and the effluvia from the ground when opened are declared to be often most offensive. The graves have sometimes been so shallow that not above eighteen inches, or a couple of feet at most, have been left between the top of the coffin and the ordinary surface of the ground.

"2. The second, or green ground, is situated on the south side of the church. It is not above a third of the size of the former one, and is altogether in a still worse and more discreditable condition. It looks indeed much more like a dust and rubbish yard than a place for the interment of human beings. In one corner stood a large heap of ashes at the side of a

privy; in another there was a quantity of old bricks and mortar; in a third there was an unclosed grave, which, although it had already received five or six coffins, was only covered over with a few boards, and some handfuls of earth strewed upon them, and was therefore ready to receive more coffins before being entirely shut; while in the remaining corner, over a comparatively recent grave, was to be seen a neatly-kept little mound carefully hooped over to keep the earth together, and presenting a sad and painful spectacle, by the very contrast of its decency to the grossly neglected state of the rest of this ground.

"3. But of all the graveyards the north one is immeasurably the worst in every respect. A person can scarcely believe that it could ever have been used as a place of sepulture. It forms a long narrow strip, not above ten or twelve feet in width, between the walls of the church on one side, and the rears of some old dirty houses in Cloth-fair, which in some parts overhang the ground, on the other. To a stranger it has all the appearance of a filthy back yard common to several low and filthy houses. The surface is strewed with cabbage-leaves, parings of turnips, fish-bones, and other sorts of rubbish, with large splashes of filthy water that had been recently emptied from some adjacent window. There is a large pile of hen-coops at one end, and a couple of dog-kennels at another part. Upon inquiring to whom they belonged, the schoolmaster of the parochial schools informed me that they were his property, adding that the management of the ground had been left by the churchwardens in his hands for the last three or four years, and that he made use of it as a convenient place to keep his fowls in. At the present season of the year, he said, it did not look nice; but in summer the grass grew quite beautifully! Before his time, the graveyard, he told me, was in a horrible state, and not fit to be entered by any one, being ankle-deep in many places with excrement which had been thrown out from the houses in Cloth-fair, and no better than a common dung-yard. Yet then, or at least not very long before, it was the pauper burial-ground for the parish; and that multitudes of human corpses have been thrust into it is sufficiently evident from the great rising of the ground, by many feet, above the level of the adjacent court. It must indeed have been a shocking spectacle to have witnessed the mockery of a Christian funeral here. No one would bury a favourite dog in such a spot. I have not seen anything called a graveyard so thoroughly disgusting and so revolting to every sentiment of common decency, not to mention religion, as this ground; nor did I ever leave a place where I knew that my fellow-creatures had been laid with feelings of such indignant regret."

"BURIAL-GROUND, WADE-STREET, ALL SAINTS, POPLAR.—The officiating clergyman, the Rev. James Hearsnep, admitted that foul smells were perceptible from the open graves; but stated that, in his opinion, the smells were attributable not so much to the decomposition of the bodies that were therein deposited, *as to the escape underneath the intervening wall of the contents of the privies of those houses into the graves.* He himself had good reason to suspect that this had been the case on more than one occasion."

"BURIAL-GROUND OF ST. JAMES' CHAPEL, HAMPSTEAD-ROAD.—Is between three and four acres in extent; has been used as a place of sepulture for the last sixty years; is enclosed on three sides by dwellings; the average number of burials has, for many years, exceeded 700 per annum—previously it was still greater, amounting to nearly 1000. In the present year the number up to the 30th of September has been 693, of which more than one half (364) took place in the course of the last three months. As many as six bodies have been deposited in a grave of ten or eleven feet in depth. In one corner of the ground there have been interred, within the last three or four years, nearly 400 bodies, packed as close as the coffins can be made to lie; and *within the present year graves have begun to be dug under the foundation of the south wall, so that the contents of the privies in the houses in Little George street have been known to find their way into them.*"

Mr. Ranger again reports :

"NEW BUNHILL-FIELDS CEMETERY, CHURCH-STREET, ISLINGTON.—From the best information I could obtain, the ground (which is private property) has been in use for sepulture about forty years : it is surrounded on all sides by dwellings. One witness states, that such has been the nearness to the surface at which bodies have been laid, that he has kicked against the coffins whilst walking, and, upon complaining of the circumstance to the proprietors, they have ordered the digger to mound up the graves. He has known graves with one or more coffins deposited therein kept open for nine or ten days (it is supposed to save the cost of re-opening the ground), and in one of the graves directly under the back windows of his house he has seen as many as thirteen bodies deposited within a period of ten days. That it is frequently the practice to disinter coffins to make room for others, and after the mourners have left the grave the disinterred coffin has been replaced upon that which had just been buried, a surreptitious mode of gaining depth to the eye of the parties attending. And during the dark nights, between the hours of twelve and three, A.M., he is in the habit of hearing the sound of work in various parts of the ground, and a light moving about; but during moonlight nights nothing of the kind is heard. The practice of disinterring coffins was also spoken to by other witnesses."

"BURIAL-GROUND, BUTLER'S-PLACE, HORSLEYDOWN.—The estimated area of the ground is 1,440 square yards, and is entirely surrounded by houses, closely packed and densely peopled; with New Church-grove, St. John's-place, and Victoria-grove impinging thereon, and rendered *culs-de-sac* by the works of the South-Eastern Railway. No part of this ground has ever been consecrated; a schoolmaster residing in the neighbourhood taking upon himself the duty of reading the burial-service. The number of burials is estimated at an average of 260 per annum.

"In one corner of this ground a vault has been made, and a communication opened with the basement, properly the cellars to several dwelling-houses; in this place human remains in ordinary coffins are deposited.

"It seems that the proprietor, who is an undertaker, is sole manager of one

or more burial societies, the members thereof paying a weekly or monthly sum in advance, and in the event of death, having paid the amount required, they are entitled to be interred in this ground, or in the vaults, upon the additional payment of one guinea, extra leaden coffins not being insisted on.

“The emanations, upon entering the vaults and cellar, I found particularly offensive, and the miasma arising from the premises is described by Mr. Russell, the medical officer, as the means of engendering disease in this locality to an alarming extent; it not having been free from disease for a long period, whilst it has furnished some of the worst cases of Cholera, twenty-one in number, together with a vast amount of diarrhœa, consisting of no less than 100 cases.”

“ST. STEPHEN, WALBROOK.—The area of this burial-ground is estimated at 306 square yards, and is closely surrounded on the south and east sides by the counting-houses of Messrs. Rothschild, with basements; on the north by dwelling-houses and offices; on the west by a narrow passage at the back of the Mansion-house; and on the north by the church. The strata consists of a dark-coloured soil, from four to five feet deep, overlying a stratum of loamy soil, nine or ten feet, resting upon sand from six inches to a foot thick; under the last is a deep stratum of marl. The registry is dated 1563. Within the last three months, that is, August, September, and October, forty-five burials have taken place, whilst the total number recorded amounts to 4,002; which is equivalent to thirteen layers of bodies in each grave: hence the entire area has been dug over for graves no less than thirteen times; and its present surface, from the increments of human remains, is two feet nine inches above the surface of the passage, and in some parts above the level of the floor in the church. It seems from the evidence of the digger, that common graves have not been confined to the churchyard, as it has been the practice to make similar graves within the walls of the church, and the pavement as a consequence is very uneven in parts, a circumstance, there is no doubt, ascribable to the decay of the coffins. This fact will sufficiently account for the unpleasant sensation experienced by the inhabitants during their attendance at Divine Service: some complain of constant headache produced by the smell, and others state that they have been obliged altogether to give up attending the church on account of it. Mr. Whistler, churchwarden of St. Bennett Sherehog, stated that about four years ago the condition of the burial-ground was such, that the Rev. Mr. Brandram, in officiating at a funeral, observed it was with the difficulty he could perform the service, in consequence of the effluvium greatest from the opened grave.”

Mr. Bowic says of—

“BARKING CHURCHYARD, GREAT TOWER-STREET, CITY.—Closely surrounded on all sides by habitations; densely packed with dead bodies. The effluvia from the ground are so offensive, that the inhabitants of the adjoining houses are frequently obliged to close their doors and windows; the smell is strongest when a grave is opened for a fresh interment, but in warm damp weather it is always offensive. One witness says, ‘Whenever a grave is opened for a

funeral, the stench is overpowering. We are obliged to keep the windows closely shut down. Some time ago, when a grave was opened for the removal of the bodies of two children, the stench was so dreadful, that, although every precaution was taken to keep the windows closely shut, it made myself and my daughter very sick and otherwise ill.' Another witness stated that 'the smell in warm weather was extremely unpleasant.' Mrs. S——, residing at No. 1, says that, when graves or vaults are opened, the smell is so exceedingly offensive as to have caused her to lose several lodgers; all her family have been ill, and she herself is in bad health, owing, as she believes, to want of air and the smells from this churchyard.

"The basement of the Tower Shades, Trinity-square, lies about ten or eleven feet below the elevation of Barking churchyard, from which it is separated by a passage about eight feet wide, paved with flag-stones. The smell here was so extremely powerful and offensive, that I was induced to examine the place minutely, when I discovered several holes in the drain, evidently made by rats, and from the peculiarity of the smell I feel assured that the churchyard was contributing its full share to the noxious compound."

"**PAUPER GRAVEYARD OF ST. BRIDE'S, FLEET-STREET.**—This graveyard is bounded on the north by Stonecutter-street, leading to Shoe-lane from Farringdon-street; on the south by Harp-alley, separating it from Poppin's and Black Horse-courts, Fleet-street; on the east by Farringdon-street; and on the west by Shoe-lane. It is thus hemmed in on all sides by houses thickly peopled. Numerous and earnest were the complaints made to me against this burial-ground. One witness, residing in Stonecutter-street, stated to me as follows: 'Believes this ground has been used as burial-place ever since the time of the plague. Thirty years ago it was a question whether it was not quite full; nevertheless, burials averaging about 100 annually have continued to take place ever since, until about three months ago; that is, three months since May, 1849. At that time a very great mortality took place, chiefly among children, in this immediate neighbourhood; and on this account the parish authorities of their own accord ordered burying to be discontinued. The smells from this graveyard are often extremely bad; typhus fever has been in her own family three times within eight years; has also lost a child from water on the brain.'

"This evidence, as I have stated, was taken in May last (1849). A few weeks afterwards I was informed that a fatal case of Cholera had occurred in the very house in which this witness lived. On inquiry I found that the victim was this witness herself. She died on the 27th of June. On questioning her husband, he told me that a few days prior to this event an awful smell pervaded the house, and that during this time his wife was seized with the Cholera. He further stated, that there had been a great deal of illness in his family, owing, as he believed, to the bad smells from the burial-ground; that the last bodies buried were only three feet from the surface, and were just above a barrel-drain only seven feet deep; and that he was always obliged to keep the window shut when the wind blew from the south.

"It is notorious that the smells from the drains and sewers in this neighbourhood are most offensive. I have myself perceived in them much of that sickening odour peculiar to animal substances undergoing putrefaction. The amount of disease in this neighbourhood, the numerous deaths that have taken place from fever, and the ravages of Cholera, are indisputable proofs of the unhealthiness of the locality, to which I am convinced the state of this churchyard contributes a large share."

"ST. ANDREW'S CHURCHYARD, HOLBORN.—While inspecting a house in Robin Hood-court, I was struck with the appearance of a wall, which was damp, glutinous, and spongy, with the lime bulging from the interstices or junctions of the bricks. That it was not considered very safe was evident from its being supported by two transverse beams resting upon the house itself. I recognized at once the cause of its dirty state when I beheld from a window the burial-ground immediately behind it, and learned how densely packed it is with dead bodies. Here again I distinctly perceived the usual churchyard fœtor from the drains."

"TRINITY BURIAL-GROUND, FETTER-LANE.—There is a little court off Fetter-lane, called Mac's-place, in Greystoke-place. It contains about eight houses, badly ventilated, most imperfectly drained, wretchedly supplied with water, and contaminated with hoarded night-soil in ill-cleansed conveniences. On its south side is the burying-ground, adding its unmistakeable odour to the other abominations. I received the following statements from the inhabitants:—

"A boy died fourteen months ago with all the symptoms of Cholera. He had been cleaning away the dirt in the room, which smelt very bad, just before he was seized. About the same time four children in the court died of fever."

"Another witness, living on the side next the graveyard, stated,

"'The house smells so bad it is almost impossible to live in it.' The smell he compares to that of a dead cat—not an inapt comparison, for certainly it was that of carrion. He adds that, 'the graveyard often smells intolerably, and that the water is shockingly bad, tasting as if they were drinking something putrefied, and often containing worms alive and more than an inch long.'

"In several of the houses which I examined the inhabitants made loud complaints, and stated that there had been a great deal of fever in the court within the last twelve or fourteen months. I saw one woman who had just recovered from diarrhœa. She told me that her two children were still suffering from that disorder. Several others rather reluctantly confessed that 'they had been similarly affected a short time ago.' The whole place might well be termed a 'fever nest.'

"WYCLIFFE BURYING-GROUND, COMMERCIAL-ROAD, EAST.—This is a burying-ground near the London Hospital. It is described as being very much crowded. A few years ago I myself attended a funeral there. The smell was so intolerable that I could scarcely endure it. The earth was obviously saturated with decaying animal matter. On my return home I had to change

my boots, they smelt so disagreeably. In a family residing in a house in Bedford-square, the windows of which look into this churchyard, and in which house I had myself often perceived the unmistakeable smell coming from the churchyard, malignant scarlet fever broke out, and one of the children died. My brother was a great deal in the room with the child that died. He also was seized with ulcerated sore throat and fever of a typhoid character, and was for upwards of a fortnight in the greatest danger. While visiting the child at his request, I was sensible of a peculiar odour in the room, and remember saying to him, 'I shall think myself fortunate if I escape a fit of sickness after that smell, for I have never yet been sensible of it without suffering.' Next day I got my clothes rather wet whilst out, and the day following was in my bed with sore throat and fever, and was confined to my room for several days. This was about the time that Dr. Lynch and several other medical men died of a similar disease."

As to the vaults of the metropolitan churches, Dr. Waller Lewis has given a fearful picture of these subterranean places of burial, and of the effects upon the health of the living of this mode of sepulture. He says:—"The vaults I have visited up to the present time are generally in a very disgraceful condition. Those least so are St. Martin's-in-the-Fields, St. Bride's, Fleet-street, and St. Mary-le-Bow. That of St. Mary-at-Hill is in a condition that is a disgrace to any civilized nation. Here are placed some 150 coffins, in all possible positions, piled one above another—the lower crushed by the weight of those above. The great majority are broken and decayed, the remnants of mortality falling out between the rows of coffins. Enormous cobwebs, and fungi, with much dirt and filth, render the inscriptions that remain illegible. In the two farther corners large collections of bones are piled together, without any attempt at order or decency—a most revolting sight. The vault is not ventilated, and the odour of decomposing flesh is extremely foul." Respecting most of the other vaults, Dr. Lewis but repeats much of the above.

Such are some of the facts as to the depositories for the dead; but ere the body is transferred to these receptacles, it is made the cause of other serious evils, physical and moral. To ponder over it, and weigh it well, it does seem an unaccountable sort of sympathy which can desire to preserve in the house of the living, the rotting, putrefying corpse; and that not for one day, or two, but for seven or more. And yet this feeling holds, and with a most strange tenacity, even among the poorest members of society.

The hard-working and badly-fed artizan, with many children around him, and all occupying but one room, loses a member of his family, and, with perverted taste, and unaccountably indifferent to the best interests of the living, hugs, as it were, to him and his, the body of the dead for at least six days, and would still cling to it, although that corpse may be occupying the only bedstead he owns, and all the living are obliged to make the floor their sleeping-place. Nay, worse; a clergyman in a very poor and crowded parish states as follows :—

“ With the upper classes a corpse excites feelings of awe and respect; with the lower classes, it is often treated with as little ceremony as the carcass in a butcher’s shop. The body is never absent from the sight; eating, drinking, sleeping, it is still by their side; mixed up with all the ordinary daily functions of life, till it becomes as familiar to them as when it lived and moved in the family circle. From familiarity it is a short step to desecration. The body, stretched out upon two chairs, is pulled about by the children, made to serve as a resting-place for any article that is in the way; and not seldom it is the hiding-place for the beer-bottle, or the gin, if any visitor should arrive inopportunist. When respect for the dead, that is, for the human form in its most awful stage, is gone, the whole range of social sympathies must be weakened—perhaps blighted and destroyed. They have gazed upon death so perpetually, they have grown so intimate with its terrors, that they no longer dread it, even when it attacks themselves; and the heart which vice has deadened to every appeal of religion is at last rendered callous to the natural instinct of fear.”

Again :—

“ There are some houses in my district,” says Mr. Leonard, the medical officer of the parish of St. Martin-in-the-Fields, “ that have from forty-five to sixty-nine persons, of all ages, under one roof; and in the event of death, the body often occupies the only bed till they raise money to pay for a coffin, which is often several days. The body is retained in the room beside the living, from five to twelve days. In one instance the corpse had been retained twelve days; I could not remain in the room two minutes from the horrible stench. The coffin stood across the foot of the bed, within eight inches of it. This was a small room, not above ten feet by twelve feet square, a fire being always in it; it was, as in most cases of a like kind, the only room for sleeping, living, and cooking in. In another instance, a mother and her infant were brought ill with fever to her father’s room, which was ten feet square, with a small window of four panes. The infant soon died; then the grandmother was taken ill, and in a few days she also died. The corpse of the grandmother lay beside her husband, in the same bed. In the next place, the husband was seized with fever, attended with violent delirium, and died; and subsequently two of his children, one within a week, and the

other within ten days, fell victims to the disease: in short, five out of the six inmates of this room died. Found in another similar room the corpse of a young person, who had died of fever; the father and mother were just taken ill of the same disease. The foot of the coffin was within ten inches of the father's head, as he lay upon his pillow, himself in a fever; in a few days another child was seized with the same disease. Cites these cases merely as examples of the fatal consequences of the long retention of the body in these small and crowded rooms; they could be multiplied indefinitely. Believes that the retention of the corpse in the room with the living is fraught with greater danger than even that produced by emanations from crowded graveyards, because when a body is retained in a small, heated, and ill-ventilated room, decomposition proceeds rapidly; the noxious gases evolved cannot escape; they accumulate, and become highly concentrated; and they often prove rapidly and extensively fatal to the living inmates."

And other witnesses before the Board of Health state, that the death of parents, leaving the children orphans and destitute, is a frequent occurrence under those circumstances; and that they have sometimes seen whole families swept away.

"Nearly the whole of the labouring population in my district," says Mr. John Liddle, medical officer of the Whitechapel Union, "have only one room; the corpse is therefore necessarily kept in that one room, where the inmates sleep and have their meals; the corpse being sometimes stretched on the bed, the bed and bed-clothes being taken off, and the wife and family lying on the floor. At other times the corpse is stretched on a board, which is placed on chairs: when children die, they are frequently laid out on a table. Other deaths often follow the first death in the same family, especially in an epidemic season."

In consideration of these circumstances, and of many more of a still more revolting character, the Board, in January, 1850, reported on a General Scheme of Extramural Sepulture, the result of which was the bringing in a Bill entitled "A Bill to make better provision for the Interment of the Dead in and near the Metropolis." Some of the details of this measure are, without doubt, open to grave objections; but it is to be remarked, that hitherto the chief opposition to the Bill has been directed against those parts of it which are in reality most beneficial to the public. It is needless to add, that the voices which have, without and within the walls of Parliament, been raised against the measure as a whole, have proceeded from those who have either personally, or through some of the more influential of their constituents, a vested interest in existing abuses.

CHAPTER VII.

Proposed Cures for Cholera.

THE following Tables were prepared with a double object ; 1st, to display the folly which could prompt so many men to propose, and urge on others, the use of remedies, sometimes even ere they themselves had given them a single trial ; to show the absurdities into which men who trust to *à priori* reasoning may be led—for the majority of these remedies, opposite and contradictory as we shall show them to be, were urged on the public or the profession with a thorough conviction on the mind of the proposer that the vaunted drug met the indications for treatment, or acted directly on what each supposed, by some little theory of his own, to be the seat of the disease, the organ or function especially at fault ; and, 2ndly, to make manifest the fact, that none of the so-called remedies have been proved to exercise the least influence over the progress of the disease they were invariably to cure.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. Tunstall . .	Petroleum	Provincial Medical and Surgical Journal.	July 12, 1848.
M. Fourcault . .	Electro-Magnetic Insulation .	Proceedings of the French Academy of Medicine, reported in Medical Times.	Aug. 8, 1848.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
M. Baudismont, Professor of the Faculty of Sci- ences at Bor- deaux.	Warm drinks, large mustard poultices to the extremities, and friction with hartshorn and oil.	Proceedings of the French Academy of Science, re- ported in Me- dical Times.	Aug.21,1848
Mr. Ford . . .	Capsicum and calomel . . .	Lancet . . .	Aug.28,1848.
Mr. Bulley . .	The use of the spirit vapour bath, and stimulating cata- plasms to the spine.	Medical Times	Sept.2,1848.
Dr. Minchowsky (Russia).	Vapour bath of water and vinegar.	Medical Times	Sept.2,1848.
Mr. Jenkins . .	Strychnia	Lancet . . .	Sept.2, 1848.
Mr. Beaman . .	Common salt	Lancet . . .	Sept.2,1848.
Mr. Twining . .	Phosphate of soda	Provincial Me- dical and Sur- gical Journal.	Sept.6,1848.
Dr. Krüger Han- sen.	1. ℞ Misturæ pyro tartarica, 3ij.; tincturæ opii simplic, 5gs. 20 drops for a grown person. 2. ℞ Cort. cascarill., gr. xij.; pulv. aromat. gr. iv; alumm. crud. gr. ij; op. pur. gr. j.	Times . . .	Sept. -,1848,
Mr. Hancorn . .	Stimulants, mercury and ses- quichloride of iron.	Lancet . . .	Sept.9,1848.
"An Officer of Rank in India." Anonymous (supported by Dr. Thomas Wise, Principal of the College of Dakkah, Ben- gal).	Assafoetida, opium, and black pepper.	Times . . .	Sept.14,1848.
Mr. Hancorn . .	Tinct. ferri sesquichlor. . . .	Med. Gazette	Sept.15,1848.
Dr. Radclyffe Hall	Tartar-emetie	Lancet . . .	Sept.16,1848.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. Brady. . .	Chloroform in weak brandy and water.	Medical Times	Sept.16,1848.
Mr. Plimmer, Melksham, Wilts.	Chloroform and brandy . . .	Medical Times	Sept.16,1848.
Anonymous, com- municated to the Board of Health by an Officer of Rank, long re- sident in India.	Assafœtida, opium, and black pepper, washed down with brandy and water.	Medical Times	Sept.16,1848.
Mr. T. Ritson. .	Carbon	Lancet . . .	Sept.23,1848.
Anonymous (a young Physician at Berlin).	Trichloride of carbon	Belgian Papers	Sept. 23,1848.
Mr. John Bell, Newcastle-upon- Tyne.	Colchicum	Medical Times	Sept.30,1848.
Central Board of Health, Dublin.	<p>"Powders.—Carbonate of ammonia, forty grains. Dissolved in half a pint of water; two tablespoonfuls every hour.</p> <p>"Powders.—Pulv. cretæ c. opio, ten grains. One powder every half hour until the looseness ceases.</p> <p>"Pills of powdered opium, each one quarter of a grain of opium, and two grains of powdered ginger, made up with oil of peppermint. One every half hour until the looseness ceases.</p> <p>"Pills of mercury and opium, each one quarter of a grain of calomel, two grains of hydrargyrum c. cretæ, and a quarter of a grain of opium, made up with oil of caraway. One every half hour."</p>		Sept.—,1848.
M. Burguières .	Acid drinks, (for the purpose of neutralizing the alkaline condition of the mucous lining of the stomach and of its secretions).	Academy of Sciences (Paris), reported in Medical Times	Oct., 2, 1848.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Dr. Shearman .	For collapse stage, transfusion of warm blood, and keep up respiration with equal parts of oxygen gas and atmospheric air. 1st stage, common astringents. 2nd, with cramps, tartar emetic and acetate of lead with opium.	Lancet . . .	Oct.14,1848
Dr. Desmyttere (Physician of the Insane Asylum at Rouen).	Inhalations of oxygen gas.	French Academy of Sciences.	Oct. 16, 1848.
Mr. Hewlett . .	Chloroform	Provincial Medical and Surgical Journal.	Oct. 18, 1848.
Dr. Henriques .	Quinine	Lancet . . .	Oct.21, 1848.
Mr. Allen, Oxford.	Large doses of calomel at the commencement, followed by smaller doses of calomel and opium, poultices, and friction. Injections of hot salt and water, or of turpentine in salted gruel.	Lancet . . .	Oct.21, 1848.
Dr. Kennedy, Woodhouse, Leicestershire . .	Camphor and laudanum in small doses, fumigations of vinegar, camphor, and fragrant antiseptic substances.	Lancet . . .	Oct.21, 1848.
Dr. Ayre, Hull .	Calomel in one or two gr. doses, taken with one or two drops of laudanum, and repeated every five or ten minutes for successive hours.	Lancet . . .	Oct.28, 1848.
Mr. Waddington, F.R.C.S.E.	Calomel and opium	Lancet . . .	Oct.28, 1848.
Dr. Willemin (Cairo).	Indian hemp (hachish) in the form of resinous extract.	Medical Times.	Oct.28, 1848.
Mr. Brady and Mr. Stedman.	Chloroform	Provincial Medical and Surgical Journal.	Nov. 1, 1848.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Committee of the Royal College of Physicians, and the Royal College of Surgeons of Edinburgh, and Dr. Sutherland, the Commissioner of the Board of Health.	<p>"The following pills may be kept constantly at each station, and the medical officers may leave general directions as to the selection of one or other of these in the first issues to the patients:—</p> <p>℞ Acet. plumbi, ʒss.; opii, gr. xii.; conserv. ros., q. s. ft. pilulæ xvi. Sign. Lead and opium pills.</p> <p>℞ Tannini, ʒss.; opii, gr. xij.; pulv. capsici, gr. xvj.; conserv. ros., q. s. ft. pilulæ xvi. Sign. Astringent pills with opium.</p> <p>℞ Calomelanos, ʒss.; opii, gr. xij.; pulv. capsici, gr. xvj.; conserv. ros. q. s. ft. pilulæ xvi. Sign. Calomel and opium pills.</p> <p>The doses of all these should be as above directed. Along with these, in the early stage of the disease, and when the skin is cold and damp, such a stimulating mixture as the following, besides the wine and spirits, may be used:—</p> <p>℞ Ætheris sulph.; spirit ammoniæ aromat. ana. ʒss.; tincturæ cinnamom comp. ʒi. (Misce.) Sign. Two teaspoonfuls to be taken every half hour or hour."</p>		
Dr. Searle. . .	Calomel	Times . . .	Nov. 3, 1848.
Mr. Boyton, Surgeon, Oxon.	Terchloride of carbon	Medical Times.	Nov. 4, 1848.
Mr. Marsden . .	1st stage, large doses of calomel administered often, avoiding opium and other narcotics. 2nd stage, saline solutions to be injected into the veins.	Work reviewed in Lancet.	Nov. 4, 1848.
Mr. Hooper . .	Saline injections	Report of Meeting of Medical Society of London, reported in Lancet.	Nov. 11, 1848.
Mr. Morley, Blackburn.	Ayre's calomel treatment . .	Lancet . . .	Nov. 18, 1848.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
M. D., Cheshire .	Iron as a prophylactic . . .	Lancet . . .	Nov. 25, 1848.
Mr. Beardsley .	Salicine	Lancet . . .	Dec. 2, 1848.
Dr. Maxwell, Calcutta . . .	Lime juice, and other vegetable acids.	Medical Times	Dec. 9, 1848.
Dr. Paxton . .	Solution of saline substances .	Medical Times	Dec. 9, 1848.
Dr. John Hall, Eastbourne, Sus- sex.	Tincture of rye and spirits of camphor.	Medical Times	Dec. 16, 1848.
Mr. Lamprey .	Cold affusion	Work . . .	Dec., 1848.
Dr. Keir . . .	Warm brandy and water and hot baths.	Medical Times	Dec. 16, 1848.
Mr. Belling, Lower Edmonton.	Warm bath, and emetic of mustard mixed with saline water.	Medical Times	Dec. 16, 1848.
Dr. Maxwell, Hyderabad, E. I.	Quinine	Medical Times	Dec. 30, 1848.
Mr. Lamprey .	Terchloride of carbon . . .	Medical Times	Jan. 6, 1849.
Mr. Evans. . .	Saline injections	Lancet . . .	Jan. 6, 1849.
Mr. Evans. . .	Charcoal	Lancet . . .	Jan. 6, 1849.
A Spitalfield's Apothecary.	A blister to the nape of the neck. Calomel, 1 gr.; with efferves- cing saline, containing from 1 to 5 minims of tinct. opii, with, in some cases, injections into the rectum of solution of nitrate of silver.	Lancet . . .	Jan. 13, 1849.
Dr. Moffatt, North Berwick.	Chloroform	Lancet . . .	Jan. 20, 1849.
Mr. Baines . .	Tartarized antimony in col- lapse.	Lancet . . .	Jan. 27, 1849.
Mr. Garlike, Rick- mansworth.	Nitrate of silver	Medical Times.	Jan. 27, 1849.
Anonymous (An Old and Retired Physician), Do- ver.	Powerful emetics of ipecacuanha and emetic tartar, followed by a large dose of calomel, with cathartic extract and oleum menthæ p., washed down with a saline effervescent aromatic draught. .	Medical Times.	Jan. 27, 1849.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. Gillott, Sheffield.	Large dose (15 gr.) calomel, followed by 1 gr. every ten minutes, the patient drinking largely of cold water.	Lancet . . .	Feb. 3, 1849.
Dr. Livingston, Leith.	Calomel and opium in large doses in men, opium and camphor in women, with warm stimulating draughts between the doses.	Lancet . . .	Feb. 3, 1849.
Mr. John Thomas, Liverpool.	Liquor potassæ arsenitis . . .	Lancet . . .	Feb. 10, 1849.
Dr. Niddrie . .	Calomel and carbonic acid gas .	Lancet . . .	Feb. 10, 1849.
Dr. Moffatt, North Berwick.	Chloroform	Medical Times.	Feb. 10, 1849.
Mr. Reid, Comrie.	In the more advanced stages, give diluents freely; stimulate the sympathetic by galvanism, or the internal use of strychnia and sulphate of manganese	Medical Times.	Feb. 17, 1849.
Dr. Chambers .	Bleeding and stimuli. Calomel.	Lancet . . .	Feb. 17, 1849.
Mr. Crummey, Stokely, York.	Diaphoretics.—Sesqui carbonate of ammonia, with spirit of sweet nitre, in large doses, together with brandy.	Medical Times.	Feb. 17, 1849.
Mr. Popham . .	Calomel	Lancet . . .	Feb. 24, 1849.
Mr. Couch . .	Liquor calcis. If there were bilious vomitings with cramps about the legs, powders of carb. sodæ and cuspariæ, aa. gr. v., with opium.	Medical Times.	Feb. 29, 1849.
Dr. John Findlay, Glasgow.	Calomel and opium. Keep the patient perspiring by means of external heat, applied to centre of body.	Medical Times.	Feb. 29, 1849.
Dr. Clanny, Mr. Ferguson, and Mr. Lamotte, Practice at Monkwearmouth Colliery, Nov., 1848.	Large doses of calomel, followed by saline draughts, with frictions and mustard cataplasms externally applied. In some cases, where vomiting had ceased, a few drops of creasote were added to the carb. sodæ.	Medical Times	Feb. 29, 1849.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Dr. Maurice Margulies, Physician in Ordinary to His Highness the Duke of Hesse.	<p><i>External applications.</i>—Liniment of camphorated oil, oil of turpentine, and liquor ammoniæ. When the skin retains its functions, liniment containing nitric acid and sulphuric acid. Sinapisms to the extremities, and vapour bath.</p> <p><i>Internal.</i>—For vomiting, small doses of fuming nitric acid in distilled water. For diarrhœa, small lavements, with five or ten drops of tincture of opium. To arrest diarrhœa, a few drops of tincture of nux vomica, and of opium. Pulse feeble or imperceptible, 1 gr. of phosphorous to 1 drachm of ether; 5-10 drops every quarter of an hour. For spasms, ipecacuanha. If the diarrhœa is bilious, add some drops of the tinctura rhei aquosa to the nux vomica and opium.</p>	Proceedings of the Edinburgh Medico-Chirurgical Society, Feb. 21, 1849. Reported in the Medical Times.	Mar. 3, 1849.
Mr. Bailey. Practice at the Pauper Establishment of Mr. Drouet, Tooting.	In diarrhœa aromatic astringents. With sickness and vomiting, ether and ammonia, with small doses of tincture of opium in brandy, and mustard plasters to the epigastric region. Also, acetate of lead, and in the collapse stage chloroform.	Medical Times.	Mar. 3, 1849.
Mr. Reynolds, surgeon, attached to the London Hospital.	Cold water as a drink, copiously.	Medical Times.	Mar. 3, 1849.
Anonymous . .	A plant known by the name <i>Zhorabia</i> , discovered on Mount Olympus, a decoction of which is represented to have the power of producing re-action in collapse.	Medical Times.	Mar. 24, 1849.
Mr. Duncan, Edinburgh.	Camphor	Lancet . . .	Apr. 21, 1849.
Dr. Kidd, Limerick.	Ipecacuanha, creasote, opium, and acetate of lead.	Medical Times.	Apr. 28, 1849.
Dr. Kelly, Mullingar.	Nitrous acid blister	Medical Times.	May 5, 1849.

By whom Proposed	Nature of the Remedy.	Authority.	Date.
Dr. Grieve, Physician to the Dumfries and Galloway Royal Infirmary.	R Tinct. rhei. e. ʒvj.; tinct. cardam. e. ʒi.ss.; tinct. opii camphorat. ʒss.; aq. cinnamon ʒvj. M. If this failed, then 10 grains of calomel combined with one-fourth of a grain of morphia. In the third stage, dilute nitric acid.	Medical Times.	May 26, 1849.
Dr. Hurteaux, Paris.	Tobacco a prophylactic . . .	Medical Times.	May 26, 1849.
Dr. Du Maryat .	Cannabine	L'Union Médicale.	May, 1849.
Dr. Thomas . .	Morphia endermically applied .	L'Union Médicale.	May, 1849.
Mr. Currie, Blackburn.	Sulphate of zinc to check the evacuations.	Lancet . . .	June 2, 1849.
Dr. Handvogel .	Hydro-chlorate of morphine applied endermically to check vomiting.	Union Médicale.	June, 1849.
Anonymous, Glamorganshire.	Olive oil	Daily Times .	July, 1849.
Anonymous, India.	Copious draughts of rice-water, in the early stage; salt and ice in its latter stages.	Daily Times .	July, 1849.
Mr. C. Rodney, Old Burlington-street.	Vapour bath	Daily Times .	July, 1849.
Mr. Owen Evans, Wilton-crescent, Belgrave-sq.	Calomel, hydrochlorate of morphia, cajaput oil, and chloric ether.	Daily Times .	July, 1849.
Anonymous . .	Ice-water internally, and wet sheets.	Daily Times .	July, 1849.
Dr. Edward Johnson, Umberslade Hall.	Wet sheet	Daily Times .	July, 1849.
Mr. J. J. Lema-nach, Margate.	Calomel gr. ij., mixed with a little sugar.	Daily Times .	July, 1849.
Dr. Lecœur, Professor of Materia Medica at Caen.	Chlorate of gold and strychnine.	Medical Times.	July 7, 1849.
Dr. Mauget, Paris.	Sesqui-chlorate of carbon, with frictions.	Medical Times.	July 7, 1849.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Dr. Taulier, of St. Victor-Lacoste.	Sulphate of quinine	Medical Times.	July 7, 1849.
Dr. Bouet, Paris.	Four cups of hot and sweetened infusion of the common lime-tree, mint, balm, or camomile, with four drops of volatile alkali in each cup.	Medical Times.	July 7, 1849.
Dr. Worms, Physician of the Military Hospital of Gros-Caillon.	Twenty grammes of dilute sulphuric acid to two pints of water.	Medical Times.	July 14, 1849.
M. Piorry, France.	Water thrown into the bladder!	Medical Times.	July 14, 1849.
M. R. C. S., Wandsworth.	Sulphur mixed with a few grains of sesqui-carbonate of soda in the premonitory stage.	Daily Times .	July, 1849.
Dr. Routh . .	Transfusion of blood	Lancet . . .	July 21, 1849.
Mr. Greenhow, F.R.C.S.	Mercury, ginger, and opium .	Lancet . . .	July 28, 1849.
Messrs. Ray and Farmer, Kent.	External cold and moisture . .	Lancet . . .	July 28, 1849.
Mr. A. Palmer, Newcastle, Limerick.	℞ Acet. plumbi. gr. ij.; opii gr. ss.; camphoræ gr. ij. M. ft. pilula.	Medical Times.	July 28, 1849.
Dr. Coppinger, Cork.	Oxygenation of the blood, effected by Dr. Stevens' treatment.	Medical Times.	July 28, 1849.
Mr. Child . . .	Ether and opium.	Medical Times.	Aug. 4, 1849.
Dr. Mutrie Fairbrother.	Inhalation of chloroform . . .	Lancet . . .	Aug. 4, 1849.
Mr. Spong. . .	Dr. Ayre's treatment	Lancet . . .	Aug. 4, 1849.
Dr. James Arnott	Extreme cold	Lancet . . .	Aug. 4, 1849.
Mr. Brainsford .	Opium and cayenne pepper . .	Medical Times.	Aug. 4, 1849.
Dr. Westmacott .	Ice	Medical Times.	Aug. 4, 1849.
Mr. T. C. Jackson.	Saline injection	Lancet . . .	Aug. 11, 1849.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. George M. Pritchett.	Dr. Ayre's treatment	Lancet	Aug.11,1849.
Fred.W.Marshall, M.B., Hawick.	Calomel	Lancet	Aug.11,1849.
Mr. Cox	Dr. Ayre's treatment with modifications	Lancet	Aug.11,1849.
Dr. Carey	Hot-air bath, to produce reaction.	Lancet	Aug.11,1849.
M. Rouget of Lisle, France.	Wrapping in sheets dipped in boiling water, and placing the patients over the boilers of steam engines !	Medical Times.	Aug.18,1849.
M. Junod	Depletion by cupping	Medical Times.	Aug.18,1849.
Mr. Munday . . .	Dr. Ayre's treatment	Lancet	Aug.18,1849.
M. Duchesne Duparc.	Dysulphate of quinine, as a prophylactic.	Lancet	Aug.18,1849.
Mr. Laker	℞ Sulph. cup., gr. ss. to gr. $\frac{1}{4}$; aq. frig., $\frac{3}{4}$ iv. to $\frac{3}{4}$ ij. M. ft. haust. cap. cum. haust. seq., in dos. alt. qq. $\frac{1}{4}$ to $\frac{1}{2}$ hor. ℞ Sulph. quinæ, gr. v. to gr. iij. ; ac. sulph. dil., q. s., solv. ; aq. frig. $\frac{3}{4}$ iv. to $\frac{3}{4}$ ij. M. ft. haust., ut supra. ℞ Mur. amm., nit. pot., aa. $\frac{3}{4}$ ss. ; aq. frig., 0 j. M. Bib. ad lib., vel p. r. n.	Medical Times.	Aug.18,1849.
Mr. Perry	Pills composed of camphor, opium, calomel, and capsicum.	Lancet	Aug.25,1849.
Mr. Osborn	Dr. Ayre's treatment	MorningChron.	Aug.29,1849.
Anonymous	Tinct. ferri and mustard cataplasms.	MorningChron.	Aug.29,1849.
Dr. Richmond . .	On first seeing the patient, two or three glasses of good port wine; with seven to ten grains of calomel, and as much Dover's powder, and a tablespoonful of the following: ℞ Spt. æth. nitrici; tinct. cardam, comp. aa. $\frac{3}{4}$ i.; tinct. camph., tinct. gentianæ, tinct. zingib., aa $\frac{3}{4}$ ss. ; tinct. benzoin. comp., tinct. rhei, spt. ammon. aromat. aa $\frac{3}{4}$ ij.; tinct. catechu, vini ipecac. aa		

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
	<p>ʒi.; pulv. boratis sodæ, oxidi bismuthi, aa. ʒ i.</p> <p>In severe cases, with abdominal pain, obstinate and persevering, ointment of the tartrate of antimony.</p> <p>For the improvement of the state of mucous membranes, a combination of the nitrate of silver, potassa, and bismuth, with columba and canella.</p> <p>In collapse, port wine and sulphuric ether, tincture of cayenne, and brandy.</p> <p>In asphyxia, in addition to a blister, a current of electricity or galvanism passed along the course of the pneumo-gastric nerve.</p>		
Dr. Philpot Brookes, Cheltenham.	Oxide of silver	Medical Times.	Sept. 1, 1849.
Mr. Dearsby . .	Tinctures of opium, rhubarb, capsicum, and cardamums, with aromatic confection.	Lancet . . .	Sept. 1, 1849.
Dr. Niddrie . .	Calomel and carbonic acid gas at short intervals.	Lancet . . .	Sept. 1, 1849.
Mr. Reece . .	Dr. Stevens' saline treatment .	Med. Gazette .	Sept. 1, 1849.
Mr. Lincoln . .	Brandy and cayenne pepper .	Med. Gazette .	Sept. 8, 1849.
Mr. Nankivell, Cornwall.	Dr. Ayre's treatment	Lancet . . .	Sept. 8, 1849.
Dr. Badeley, Chelmsford.	Dr. Ayre's treatment	Lancet . . .	Sept. 8, 1849.
Mr. Howlett . .	Saline injection	Lancet . . .	Sept. 8, 1849.
Dr. Little . . .	Alcoholic and saline fluids . .	Lancet . . .	Sept. 8, 1849.
Mr. Reeves, Carlisle.	Counter irritation over the spine.	Lancet . . .	Sept. 8, 1849.
Dr. Payne . . .	Dr. Ayre's treatment	Lancet . . .	Sept. 8, 1849.
Mr. Oliver . . .	Abstraction of blood	Lancet . . .	Sept. 8, 1849.
Mr. Paxton . .	Chloroform and brandy	Morning Chron.	Sept. 8, 1849.
J. D. C., Portsmouth.	Prussic acid and carbonate of soda.	Medical Times.	Sept. 8, 1849.

By whom Proposed	Nature of the Remedy.	Authority.	Date.
Mr. T. H. Leigh-ton, Llandilo.	The patient to be sponged all over, except the head and face, with a solution of muriate of ammonia; the body to be then dusted with pure lime, and closely covered up. Oatmeal gruel, with plenty of salt in it.	Medical Times.	Sept. 8, 1849.
Anonymous . .	Nitrous oxide	Medical Times.	Sept. 8, 1849.
Mr. Howlett . .	Saline injection	Medical Times.	Sept. 8, 1849.
H. F., Bristol . .	Dr. Ayre's calomel treatment .	Med. Gazette.	Sept. 8, 1849.
Anonymous . .	Saline purgatives, combined with calomel and opium.	Medical Times.	Sept. 8, 1849.
Dr. Wilson . .	Sydenham's treatment by laudanum.	Lancet . . .	Sept. 15, 1849.
Mr. Pickop, Blackburn.	Dr. Ayre's treatment	Lancet . . .	Sept. 15, 1849.
Worcester Herald.	Dr. Stevens' saline treatment .	Worcester Her.	Sept. 15, 1849.
Dr. Balfour . .	Lime water and milk, weak saline solutions, and <i>homœopathy</i> .	Medical Times.	Sept. 15, 1849.
M. Raspail . .	<p>"To preserve yourself from an attack of Cholera, you must follow the camphor and aloetic regimen; employ a nourishing diet, well seasoned with garlic, pepper, and ginger; you must employ frequent lotions with the camphorated alcohol, or with Eau de Cologne, and frictions with the camphor pomatum.</p> <p>"Should the disease attack you, you must continue the above, and a cure will be obtained by the following treatment:—A vermifuge poultice to the abdomen, repeated every quarter of an hour, with strong frictions of the camphorated alcohol, while the poultices are being prepared. Aloes and the vegetable broth are then to be taken, and followed by the tobacco lavement or vermifuge. Every hour fifteen centigrammes of camphor in a glass of tar water; lotions of camphor water on the head,</p>		

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
	neck, back, and wrists; frictions with the camphor pomade from the neck to the anus; frequent gargling of the month with salt and water. When you have pursued this treatment for a few hours, take fifteen grains of crystallized calomel, and some castor oil half an hour afterwards. "When the crisis has passed over, sedative and alkalino-ferruginous bath, with frictions on coming out. Strong aromatized nourishment as soon as your appetite returns. Salt and water for drink." . .	Medical Times.*	Sept. 15, 1849.
Mr. Ross . . .	Nitrate of silver and opium . .	Medical Times.	Sept. 15, 1849.
Mr. Batten, Pimlico.	Phosphorus	Medical Times.	Sept. 15, 1849.
Dr. Davies, Hertford.	Chloroform internally, mixed with mucilage.	Medical Times.	Sept. 15, 1849.
Dr. Burton, Walsall.	Opium and dilute acetic acid . .	Medical Times.	Sept. 15, 1849.
Dr. Davies . .	Chloroform	Lancet . . .	Sept. 22, 1849.
Mr. Herring, practical chemist.	Inhalation of oxygen gas . .	Lancet . . .	Sept. 22, 1849.
Dr. Tuthill Massy.	Diarrhœa :— ℞ Mist. camphoræ ℥viij.; conf. aromat. ℥ij.; tinct. opii. ℥xl.; sp. ammon.; c. ℥ij.; tinct. zing. ℥iv. Dos. ℥j. ter. die. Patients with vomiting :— ℞ Ol. ricini ℥iv.; tinct. opii. ℥xxx. aq. menth. pip. ℥iv.; Ft. hst. ss. With cramps :— ℞ Æth. sulph. ℥j.; sp. ammon. c., ℥j.; tinct. cinnamoni, c., ℥j.; aquæ ℥jss. M. ft. haust. stat. sum.	Treatment at the Exeter Dispensary, laid before Meeting of Devon and Exeter Pathological Society. Reported in Medical Times.	Sept. 22, 1849.
Mr. Woodman .	℔j. of calomel with forty drops of laudanum. Water drink.	Ditto . . .	Sept. 22, 1849.

* The Correspondent adds to this plan of treatment as follows :—" I send you the above, as one of the curiosities of medical literature; yet the unhappy maniac who produced it is regarded as a martyr by the people, and many a sturdy patriot will assert to you, ' that Raspail could banish the Cholera if the re-actionists would permit him.' "

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. James . .	Venesection; opium to throw the blood to the surface.	Ditto . . .	Sept.22,1849.
Sir Alexander M. Downie, M.D.	Dr. Stevens' saline treatment .	Medical Times.	Sept.22,1849.
Dr.H.M. Hughes.	A large dose of solid opium by the mouth, followed by astringents, ammonia, and opium in fluid form, together with an enema composed of a small quantity of warm starch, and a full dose of laudanum. In collapse:— Calomel, stimulants, and hot blankets.	Medical Times.	Sept.22,1849.
Dr. Beamish . .	Opium in doses of $vj.$ to $xijj.$ gr.	Medical Times.	Sept.22,1849.
Mr. Mann . .	Liq. chlorini of the Edinburgh Pharmacopeia, $\mathfrak{zj.}$ to $\mathfrak{zjss.}$	Medical Times.	Sept.22,1849.
Mr. John Leigh .	Strongly rubbing the body in a hot salt-water bath, or with common salt; or a turpentine glyster.	Medical Times.	Sept.22,1849.
Dr. E. A. Turley .	Dr. Stevens' saline treatment .	Medical Times.	Sept.29,1849.
Mr. Hunter . .	Dr. Stevens' saline treatment .	Medical Times.	Oct.16,1849.
Dr. Fairbrother .	Calomel and opium with chalk mixture.	Lancet . . .	Oct.13,1849.
Mr. Grove, Wandsworth.	Sulphur mixture	Lancet . . .	Oct. 20, 1849.
Dr. Lewis . . .	Powdered rhubarb, calcined magnesia, comp.spt. of cinnamon.	Lancet . . .	Oct. 20, 1849.
Dr. Maxwell, Hydrabad.	Carbonate of soda.	Lancet . . .	Oct. 20, 1849.
Dr. Hastings . .	Bisulphuret of carbon . . .	Medical Times.	Oct. 20, 1849.
Dr. Tucker . .	Dr. Stevens' saline treatment .	Medical Times.	Oct. 20, 1849.
Dr. Dingham . .	Acetate of lead, combining it with opium, stimulants, and counter irritation. In aggravated forms:— Acetate of lead in large doses; cold water always allowed. In collapse:— Venesection.	Medical Times.	Oct. 27, 1849.
Mr. Giebert, C.E.	Lemon juice.	Medical Times.	Oct. 27, 1849.

By whom Proposed.	Nature of the Remedy.	Authority.	Date.
Mr. Griffith . .	Calomel in large and frequently repeated doses, accompanied by mercurial frictions. In extreme collapse, large doses of salt and water.	Meeting of the Medical Society of King's College, Oct. 18, 1849. Reported in Medical Times.	Nov. 3, 1849.
Mr. Lafargue .	Dr. Stevens' saline treatment .	Medical Times.	Nov. 3, 1849.
Dr. Stoor . . .	Saline treatment	Lancet . . .	Nov. 3, 1849.
Mr. Woodman, Exeter.	Dr. Ayre's treatment	Lancet . . .	Nov. 10, 1849.
Mr. Bellasis Marfen.	Calomel, opium, and cayenne pepper.	Lancet . . .	Nov. 10, 1849.
Dr. Nankivell, Torquay.	Gallic acid	Lancet . . .	Nov. 17, 1849.

Excluding secret remedies, the mere naming of which would occupy a good long summer day, the foregoing are the majority, that were proposed during the years 1848 and 1849, for the treatment of Cholera. We cannot promise the reader that they are all; yet are they enough to make manifest the absurd notions abroad. Let us pass in review these remedies, so as to obtain, as it were, a bird's-eye view of them. They defy classification. Omitting for the moment the complex methods by which Cholera was to be vanquished, what were the simple specifics that were to cure—infallibly cure—the fearful enemy? Water, of every temperature. “Wrap the Cholera patient in a cold sheet,” says one. “Dash cold water repeatedly over the sheet in which he is enveloped,” says a second. “Ply him well with cold water internally,” says a third. “Freeze him; cool his blood to 30° below zero,” adds a fourth. “Fools that ye are!” exclaims a fifth, “thus to treat the half-dead with Cholera; I say, wrap him in sheets soaked in boiling water; and having thus half-cooked the shivering wretch, conclude the process by placing him over the boiler of a steam-engine.” Sage advice, learned Thebans! The blood is dark, and the surface cold. “My theory,” shouts one man, “is, that oxygen reddens the blood, and by its action on that blood generates heat; therefore make the patient inhale oxygen.” “Nay,”

rejoins another; "the blood in the lungs is too bright; oxygen has nothing to do with the generation of heat; stifle him with carbonic acid." "There are cramps present, which cause much suffering, and, therefore, are they the symptoms especially to be treated. Chloroform annihilates pain—let him breathe chloroform." "It is evident," avows one sapient doctor, "that there is no bile in the stools—therefore calomel should be administered." "It is plain," says another, "that diarrhœa is the great evil—therefore let him have opium;" *i. e.*, the drug which effectually prevents a free flow of bile. He is cold and depressed; what so natural as to stimulate? The wisdom of the proposal is proved by the numbers who recommended its adoption—the folly of the many is manifested by the proportion who died under the use of stimulants. "Give him alkalies," vociferates one man. "Nay," says another, "lemon-juice and acids are the true remedies." "It is simply a stage of intermittent fever," maintain some—"therefore," they add, "the drug for its prevention and its cure is quinine." "Not half potent enough," whispers a supporter of the same theory; "give him arsenic."

Certain fanatics refuse the use of medicine, but in the course of their religious mummeries administer to the credulous a cup of olive oil. A patient recovered, and "Eureka!" shout the populace. "Vox et præterea nihil," say those who wait awhile before they decide. Opium, in one man's mind, is a specific in small doses—the twentieth of a grain frequently repeated. "Nonsense!" says another, "opium is a specific; but let it be given in doses of from six to twelve grains." The latter has one advantage—if the power of absorption yet remains to the stomach, the patient will assuredly be saved all further pain, and, if he be a good man, mercifully provided for in a better world. However, as the duty of the doctor is to keep men here, and not to hurry them off there, we suppose twelve-grain doses of opium will not be very extensively recommended by the profession.

"Calomel is the specific that will stay every symptom of the Cholera—bring back the absent pulse—restore the genial warmth of the icy skin—bid bloom again the leaden cheek; give it, then, freely, in large doses—give twenty or thirty grains, and see its magical effects!" "Do so," says an equally devoted admirer of calomel, "and you will give the last blow to the dying wretch."

Calomel is the remedy ; but it must be insinuated into the system in small doses, frequently repeated." "Bah !" replies the first, "if you follow this man's whim, the patient will slip through your fingers." Then come other infallible specifics—pitch, sulphur, phosphorus, and carbon ; gold, silver, zinc, and lead ; strichnine, salicine, morphine, and cannabine ; hackish and zhorabia ; abstraction of blood, and injection of blood ; perfect repose and incessant motion ; to the skin, irritation the most severe, applications the most soothing ; stimulants the most violent, sedatives the most powerful ; inhalation, flagellation.

But if these are the simple, what are the complex methods of treatment that have been proposed ? A combination of all the absurdities contained in the foregoing. Let us just draw the reader's attention to one compound method of treatment. Here are the remedies proposed by one gentleman :—port wine, calomel, opium, sulphate of potash, powdered ipecacuanha, spirits of nitric ether, cardamom-seeds, raisins, caraway-seeds, cinnamon, cochineal, camphor, aniseed, benzoic acid, benzoin, storax, balsam of tolu, aloes, rhubarb, sal-volatile, ipecacuanha wine, biborate of soda, oxide of bismuth, spirits of wine, nitrate of silver, tartar emetic, potassa, bismuth, calumba, canella, sulphuric ether, cayenne, brandy.

What a divine afflatus must have distended the mind of the proposer of the above remedies, ere he could have conceived the idea of bringing such an assemblage of drugs into one prescription ! Think of the wisdom that must have guided the choice of each, and apportioned the fitting dose ! And then fancy that all are to be administered to the same unfortunate stomach during the short space of forty-eight hours ! Byron's dish, which even the good-natured Grimaldi could not stomach—apple-pie with anchovy sauce—was nothing to it !

One learned Parisian doctor, discarding the hitherto sacred numbers—the Pythagorean charm—proposes *four* cups of *sweetened* lime flower, mint, balm and camomile tea, each to contain *four* drops of volatile alkali. Four drops in each of the four cups—neither more nor less—sixteen drops of sal-volatile, and a little mint tea. Surely nothing could, in one sense, be more simple than this ! Oh, yes ! there is one more simple still—milk and homœopathy ! If not more simple, far more disgusting, and not

more sapient, was the proposal for the patients to quaff goblets of fresh-drawn blood !

It must not be supposed that all these follies are due to medical men. No ; many of the *remedies* were proposed *by laymen of all varieties*, from the preacher to the artizan—learned and unlearned—rich and poor ; men who had resided in their own parish from the time they first saw light, and men who had journeyed from east to west ; men who had never opened a medical work ; and men, and women, too, whose inspirations were drawn from the pages of Buchan, or whose learning was limited to the herbal of Culpepper. In England, confidence was claimed for a drug because it was extensively used in India, where Cholera slays its hundreds of thousands, uninfluenced by the infallible charm. In India, the last mode was imported from England, where notoriously some 40 or 50 per cent. of those attacked with Cholera have died.

The great fact that we learn from all this display of drugs and simples is, that none were really of use ; while the practice of the homœopathist affords us a pretty good criterion of what proportion of those attacked will die when nature is left to her own efforts to effect a cure. From 35 to 50 per cent. of the cases of Cholera for which nothing was done, in which no treatment was employed, proved fatal. This list of remedies proves how little hope can be placed in any of the vaunted specifics hitherto examined, to cure Cholera.

Although he cannot but be struck with the impotence of the efforts made to check the progress of Cholera, yet must the historian of the disease rise from his labours with high admiration of the nobleness of the moral character of our profession.

In it he sees examples of men who sacrifice their own lives for the good of their race, with a noble self-devotion far above all praise. Curtius, with Rome to gaze and applaud, could offer himself a willing sacrifice for his country's good, and win an immortal name. The soldier stimulated by a sense of honour and burning for glory—enticing, yet empty sound—a soldier with his country to vote him thanks when success crowns his efforts—with a certainty that if he dies, his country will assume the protectorship of his wife and children, will rush to danger, and if

he falls he wins his meed of renown—a nation's praise, a monumental apotheosis, a page in history.

But no such incentives stimulate the medical warrior. He must encounter death with no glory to be gained by success, with no hope of gratitude from his country if he fall. Worn down by the fatigues of the day, he must be willing at the call of the most abject of his race, suffering perhaps from foul death-diffusing disease, to forego the sweets of repose. He, we say, has no hope of gaining glory, of winning gratitude; his only reward too often is, that consciousness, sweeter to its possessor, however, than the fading honours of the "*palma nobilis*," which

“*Terrarum dominos evehit ad Deos—*”

the consciousness of having done his duty.

We rejoice to think we belong to a profession, the members of which have, during the late epidemics of Cholera as on other occasions, showed that with the hope of such rewards alone before them, they could, under the most disheartening circumstances, continue their arduous and humane labours with unfailing energy.

CHAPTER VIII.

The Saline Treatment.

IN the preceding chapter we have detailed many of the various methods which have been recommended and employed for the treatment of Cholera. Nearly every powerful remedy known to medical men has been tried and failed. The mortality of the disease was never reduced much below what may be termed the natural standard, viz., about 50 *per cent.* of the cases treated in any given and extensive series of attacks. The truth is, that the great majority of practitioners administered their remedies without any clear notion of the real nature of the disease treated by them, or of the object to be attained by the treatment employed. They gave drug after drug, draught after draught, heaping a Pelion of pills upon an Ossa of powders, in the vain hope of discovering a specific to immortalise their names.

By a blind perseverance in this course a heavy blow was inflicted on the science of medicine, and the public compelled to draw the melancholy conclusion that Cholera was an incurable disease—a scourge completely beyond the resources of the healing art. But He, who for his own wise purposes permits evil to prevail, at the same time furnishes man with the means of counteracting its effects. Cholera does not form an exception to the general law which teaches us that Nature, when properly aided by those means which knowledge affords, is capable of curing most, if not all, complaints. Humanity has not yet been afflicted with any acute disease, in itself and of necessity, mortal. Ex-

perience has shown that plague and yellow fever—two maladies at one time regarded as incurable—may be grappled with and subdued. And so it is with Cholera. If the mortality from this pestilence has hitherto fallen little short of 50 *per cent.*—if it has slain its thousands and its tens of thousands in every quarter of the habitable globe—man should blame his own ignorance or obstinacy, instead of attributing the misfortune to a visitation from on high. The important discovery of Dr. Stevens, relative to the action of neutral saline substances on the blood, has abundantly proved that Cholera can be mastered, and its mortality reduced to an insignificant per centage. Few, however, are prophets in their own country; and history teaches that great discoveries have at the outset invariably met with blind and determined opposition. Truth is seldom received at once. The trials of adversity seem necessary for its ultimate and immutable foundation. Men cling with pertinacity to preconceived opinions, and a false sense of pride prevents public bodies from acknowledging error. Hence, perhaps, one cause of the determined opposition which the discoveries of Dr. Stevens met with almost from the very commencement, and hence the load of calumny or misrepresentation which has been accumulated, with all but crushing effect, during a period of nearly twenty years, on one of the most upright and philanthropic members of the medical profession.

The discoveries of Dr. Stevens were received with incredulity. As truth began to dawn, and error to fade before it, his doctrines were misrepresented, that they might be the more easily overthrown. The saline treatment had been applied with the most unexpected and astonishing results to a large number of cases in the same establishment. Public attention was aroused—converts were daily increasing—the triumph of truth was all but assured—when, as in the fable of old, it would appear as if vipers had been sent to strangle the infant at its birth: Dr. Stevens was accused of having deliberately perverted facts to suit his own purposes—of having affirmed that to be which was not—in a word, of having made false returns of the cases treated by himself. So artfully were these accusations prepared—with such perseverance were they propagated both at home and abroad—so strangely did the authorities refuse to inquire fairly into a subject with which the lives of thousands and the welfare of the whole community were

inseparably connected—that up to the present moment Dr. Stevens is regarded by the public, ignorant of the truth, and by many in the profession, as little better than a detected impostor.

We shall, however, here confine ourselves to a succinct account of the saline treatment, as recommended by Dr. Stevens, and to a rapid, but we trust a faithful, sketch of its early history in this country.

The method we are about to describe was that followed with such decided success at the Coldbath-fields Prison, and elsewhere.

Premonitory Symptoms.—Acting under the belief that the premonitory bowel complaint is an effort of nature to expel the poison from the blood and the body, on the first appearance of the premonitory symptoms a seidlitz powder was administered; but if the patient experienced a sense of sinking without diarrhœa, more active saline purgatives were then employed. The aperient generally used was sulphate of magnesia, from one to three drachms of which were added to the seidlitz, the whole taken in a state of effervescence. When this commenced acting on the bowels, the patient was encouraged to drink freely of thin beef-tea, well seasoned with common salt. If vomiting was present, a sinapism was applied to the epigastrium: if the thirst was intense, seltzer, soda, or plain water, was allowed *ad libitum*. By the employment of these simple means not more than one in twenty-five cases passed into the second stage—that stage only which can be properly called Cholera. It should here be stated that those cases alone which passed into this second stage were entered in the Journal as cases of Cholera by the prison authorities; and that such only are included in the numerical statements of Dr. Stevens.

Second stage, or that of developed Cholera; the diagnostic symptoms being cramps, coldness, or sinking prostration. The following powder,

℞ Sodæ sesquicarb., ʒj.; sodii chlorid. ʒj.; potassæ chloratis, gr. vii.

was dissolved in half a tumbler of water, and administered in severe cases every half hour—in some malignant cases every fifteen minutes; while in those cases which were not very severe it was given every hour. The frequency with which the dose was repeated in each particular case varied according to the circumstances of that case. In every instance the saline was continued

until the circulation was fairly restored : when once that point was gained, the intervals between the doses were lengthened ; and when re-action was completely established it was left off by degrees. In extreme cases the dose of the chloride of sodium was increased to two drachms, and in some cases to even more than this. In those cases where the stomach was very irritable, a dilute solution of chloride of sodium was thrown up into the intestines ; the temperature of this saline enema being as high as the patient could easily bear, which, as a general rule, was about 100 degrees Fahrenheit. When properly used, this is a means of great value.

When the stomach was irritable, the use of the saline powder was occasionally suspended, and common effervescing mixtures, or small doses of the common soda powders, with an excess of the carbonates, were frequently used, until the vomiting abated, and then the carbonate of soda, with larger doses of the chlorate of potash, were given without the chloride of sodium, or frequently, in such cases, the chlorate of potash was given by itself, in doses of ten grains each.

A large mustard poultice was applied in such cases to the epigastric region the moment the patient came under treatment. When the saline powders were used at the time the stomach was very irritable, it was deemed advisable to dissolve them in a very small quantity of water. When cramps supervened, the extremities were rubbed with hot flannel. The pain produced by the spasms in the muscles was not only relieved by the frictions, but by this and the application of sinapisms to various parts of the body the temperature was increased : an object of no trifling importance in the treatment of Cholera. In this stage of the disease, as in the premonitory symptoms, seltzer or cold water was allowed the patients *ad libitum*. A strong infusion of green tea was also occasionally used in severe cases, and apparently with advantage.

The patients were invariably placed in a room in which a large fire was kept day and night.

The ejections and all other impurities were removed immediately from the patient's room—a pure atmosphere and great cleanliness being considered essentially necessary to a successful issue ; the infected wards were fumigated with gunpowder ; and no solid food was allowed the patients for a few days after recovery.

In exceedingly malignant cases, or when the patient was not seen till late in the disease, the stage of collapse being well marked, the most active measures were adopted. An ounce of the chloride of sodium, with half a drachm of the chlorate of potash or the chloride of potassium, was immediately given in cold water, and repeated, if necessary, every half hour until the patient had taken about three doses of this strong solution. If re-action ensued, it was kept up by the common saline powders; but if the strong saline given by the mouth failed, as a last resource, a saline fluid was injected either into the intestines or into the veins.

In scarcely any one case left to Dr. Stevens' care was the smallest quantity of opium or other narcotic administered—above all, in the early stage. Dr. Stevens' experience leads him to consider these drugs to be as fatal in Cholera as they are in either the African typhus, or the seasoning fever of the West Indies; and he never failed urgently to request all those who desired to test the efficacy of the saline treatment, to place implicit confidence in it, and to trust to it alone. To poison the patient with opium, or with prussic acid, to exhaust his nervous system with galvanic shocks, to depress the vital powers with extreme cold, and then—because at the same time with these deleterious agents salines had been administered—to declare the patient had fallen a victim to Cholera while under the treatment recommended by Dr. Stevens, was not only untrue, but, at the same time, to offer a serious impediment to the successful treatment of the disease. For results obtained by such unjustifiable proceedings, Dr. Stevens cannot be responsible; nor can such cases be admitted as evidence in determining the value of the non-purgative salines as remedial agents in the treatment of Cholera.

The mode of treatment we have described was practically applied, for the first time, during the outbreak of Cholera which took place in Coldbath-fields Prison, in the year 1832. It was, as we shall presently see, eminently successful. Nevertheless, the doctrines of Dr. Stevens were ridiculed, his motives impugned, the results of his practice misrepresented, and its utility denied. Hence, for a time, all remonstrance was useless, and truth itself obscured in an impenetrable cloud of darkness. To dissipate that cloud is now our object: nor is the task a difficult one. We

have merely to lay before our readers a "plain, unvarnished tale"—a sober statement of facts, to the truth of which we pledge ourselves,—leaving an impartial profession to draw their own conclusions.

Epidemic Cholera broke out in Coldbath-fields Prison on the 5th of April, 1832, and continued to prevail there until the 27th December in the same year. A short interval of repose, however, occurred between the 11th of May and the 3rd of June. We shall therefore distinguish the two attacks,—the first prevailing from April 5th to May 11th; the second, from June 3rd to December 27th, 1832.

The first cases were treated in the manner recommended by the Board of Health. This plan failed. Mr. Wakefield, surgeon to the prison, having become acquainted with the views of Dr. Stevens, came voluntarily forward, and invited that gentleman to undertake the treatment of a certain number of the Cholera cases—four deaths having already occurred. Dr. Stevens at once consented, and undertook, on the 10th of April, to superintend the application of the saline plan of treatment. This method was assiduously employed in the cases admitted from the 10th to the 30th of April by Dr. Stevens and Mr. Wakefield, and from the 30th April to 11th May by the latter gentleman.

In the first irruption, dating from April 5th to May 11th, there had been a total number of 165 cases of Cholera, 30 of which were cases of collapse. It appears from the books of the prison, that nine deaths had occurred in this number of cases. In a letter, dated April 25th, which Mr. Wakefield wrote to the Editor of the *Medical Gazette*, he said, alluding to the cases which had then come under his care, "*Four of the first cases were treated in the common way, and every one of them died.*" This reduces the nine deaths, so far as the saline treatment is concerned, to five. But we also have Mr. Wakefield's admission of another very important fact, viz., that as the numbers admitted into the infirmary increased, "it became necessary to dismiss those who appeared least ill;" the consequence of which was, that a relapse set in in two cases, "and though every attempt was made to save them, yet they both died after a very short illness, with the symptoms of Cholera in its most virulent form." Deducting then these six cases from the gross number of

nine deaths in the first irruption, we have only three deaths left. The records of the prison also testify to the truth of the above facts, independently of Mr. Wakefield's public statements. It appears, from the same documents, that two of these three deaths were caused by other diseases, and not by Cholera. Both these patients had completely rallied from the attack of that disease; one "who was of very delicate habit" had been attacked with Cholera on the 14th of April, and had recovered, but was seized with fits a month afterwards, and died on the 15th of May; while the other, although every symptom of Cholera had been entirely subdued, died on the 24th of April from fever of a typhoid form.* We then have one death left to be accounted for under the saline treatment, the eight others being disposed of as above. It is also to be observed that in this case, it appears from the books of the prison (though we may grant the patient was under the saline treatment all along) that hot brandy-and-water had been given him occasionally. We shall, however, take this as one death occurring under the saline treatment, and the result is, in the first irruption:—165 cases of Cholera (and by Mr. Wakefield's own admission up to the 25th of April, twenty-five of these had been in a state of collapse,) with one death, under the saline treatment, in 159 cases, or one death and 158 recoveries.

This is the whole truth respecting the first trial of the saline treatment in this country; and we challenge any one to prove the contrary. We have seen and carefully studied the official documents which sustain the truth of our statement, and we are, moreover, enabled to say that these documents, with an explanatory text, will be submitted to the judgment of the profession.

That such a result should excite envy and opposition might be anticipated; since persons having authority from the State had already advocated doctrines and recommended a practice directly the reverse of that which Dr. Stevens had inculcated. Both could not be right. A determined effort was therefore made to mislead the public, and induce them to believe that Dr. Stevens was wrong.

In this attempt, Sir David Barry was the principal agent;

* Respecting this case, Mr. Wakefield placed the following notes on the Prison Books:—
 "Frederick Cook, aged 25, was admitted into the infirmary on the 11th of April, 1832, with confirmed Cholera. From the attention paid to him, and the remedies prescribed, the symptoms of Cholera were subdued; but fever of a typhoid form supervened, which produced his death on the 24th ult. (*Included with the deaths from Cholera.*)"

while it appears that Mr. Wakefield, so lately the ardent advocate of the saline treatment, was induced to modify, if not abandon, opinions which he had recorded in the most decided manner. And then Sir David Barry, with more patronage at his disposal than he could or well knew how properly to employ, next prevailed upon Dr. O'Shaughnessy to attempt the condemnation of the saline treatment in the pages of the *Lancet*.

The second outbreak of Cholera in Coldbath-fields Prison afforded these parties an opportunity of carrying into effect their hostility to the remedial measures proposed by Dr. Stevens; and passing, then, to this second irruption, which dates from June 3rd to December 27th, we find 337 cases of Cholera recorded in the books of the prison, and of which 201 were in a state of collapse. Of these thirty-five terminated fatally. Are these thirty-five deaths to be attributed to the saline treatment? We shall show the contrary. It appears that during the temporary absence of the Governor, Col. Chesterton, Mr. Wakefield had been led to abandon Dr. Stevens' plan on or about the 13th of June; the result of this was, that from the 14th of that month to the 25th inclusive (a period of eleven days) no less than fourteen patients were lost, not under Dr. Stevens' saline treatment, but in consequence of its abandonment; five of these deaths occurred in one day—namely, on the 22nd, or, rather, from twelve o'clock at noon of the 21st to twelve o'clock at noon of the 22nd.

This state of things appears to have aroused Mr. Wakefield to a sense of danger. Finding that affairs were proceeding from bad to worse, he sent for Dr. Stevens, on the night of the 21st, to visit the prison, on the pretext that "the salines had now failed to produce their usual effect." Dr. Stevens visited the prison without delay—and, to his amazement, found that the so-called saline treatment was anything but conformable to the plan which he had laid down, and which Mr. Wakefield himself had adopted, with so much success, during the former outbreak.

After an interview at the prison with Dr. Stevens late on the night of the 21st, Mr. Wakefield promised that in future the saline treatment should have full force in that establishment. The mischief of its abandonment, however, did not cease until the 25th. We may here state, that early on the morning of the 22nd, and in consequence of what had taken place the evening before, Dr.

Stevens and Mr. Crooke, Dr. Stevens' assistant, returned to the prison, and resumed the management of the Cholera patients.

The opponents of Dr. Stevens seem to have thought the temporary absence of the indefatigable and very anxious governor—for Colonel Chesterton personally superintended almost every case during the first irruption—a favourable moment for striking a decisive blow; and Sir David Barry, personally on the 25th of June, and indirectly on the 23rd, in a leading article of the *Lancet*, urged Dr. Stevens to demand a commission of inquiry into the merits of the saline treatment. This, however, he judiciously declined. But a commission was still thought necessary; and accordingly a paragraph was inserted in the *Globe* newspaper, of the 27th of June, announcing a rumour "that the Cholera had raged, within the last few days, among the prisoners, with great violence; and that during the last twelve days upwards of one hundred prisoners had been attacked, and ten or eleven deaths occurred."

This statement naturally excited alarm. Sir David Barry, having obtained from the higher authorities the appointment of the wished-for Commission, of which he was nominated the head, and his friends Dr. Maling and Dr. Macann members, was ordered to inspect the prison on the same day, the 28th. Sir David Barry, attended by Dr. O'Shaughnessy, had, it should be mentioned, made a semi-official visit on the 27th.

The reports of the inspectors—official and semi-official—announced a fact of the most astounding nature, for which few indeed, were prepared. They affirmed, in published documents and in official communications to Government, that "*not a single* case of Cholera existed in the prison on the 27th of June, and that there were only three cases of the disease in the prison on the 28th." Dr. Stevens, on the other hand, had spoken of having seen forty Cholera patients there on the 25th; Colonel Chesterton, the Governor of the prison, in his report of the 28th, had mentioned seventy; and in the article in the *Globe*, as we have seen, the attacks within the last twelve days (previous to the 27th), had been estimated by Sir David Barry and his friends at one hundred.

The conclusion from all this is obvious. Sir David Barry and Dr. O'Shaughnessy denied the existence of a single case of real

Cholera on the 27th. The Government inspectors admitted the existence of only *three* cases on the 28th. The assertions of Dr. Stevens and Col. Chesterton were therefore falsified, and Cholera could not be said to prevail in the prison. Its existence there—manifested by three cases only on the 28th—was a matter of the most insignificant import. Hence the assertions, deductions, and claims of Dr. Stevens were reduced to zero ; hence was he exhibited to the world as an impostor, and to this very day is regarded, even by the charitable, in the light of a fanatic. So strong, indeed, was the impression produced on the minds of the Government authorities by the mis-statements of Sir David Barry and his friends, that when Dr. Stevens, about to leave England for a long period, did apply to the Privy Council, on the 8th of September, 1832, for a commission of inquiry, he was met with a refusal, on the very grounds that Sir David Barry's official report, confirmed by a "return" from the surgeon of the prison, had proved the great exaggeration of the statements made by him relative to Coldbath-fields Prison.

The Privy Council, however, moved by the paragraph in the *Globe*, already mentioned, and by a note from the Governor, on the following day, stating the existence of seventy cases of Cholera in the prison, appointed a commission to visit the establishment on the 28th of June ; and likewise ordered a return of the state of the prison from the surgeon. Taking advantage, however, of the loose manner in which the order from the Privy Council was drawn up, Mr. Wakefield sent in a "nominal return," not of all the Cholera patients then in the prison, but a list only of those *attacked* on the 26th, 27th, and 28th. Such a return was manifestly calculated to throw no light on the real condition of the prison some days previously, nor to confirm or overthrow the statements of Dr. Stevens and Colonel Chesterton ; which, being unable to contradict, Sir David Barry and his fellow commissioners evaded the difficulty by silence respecting that which had occurred previous to the 26th, stating "it is almost needless to observe that no part of the preceding notes or statements is meant to refer to any time or circumstances connected with the patients, anterior or posterior to the moments at which they were seen by Dr. O'Shaughnessy, Mr. Maling, Dr. Macann, and myself. (Signed.) D. B."—*Lancet*, page 457, 1832, vol. I. Mr. Wakefield, however, in his return of the 28th June, states, "In relating these cases for the

information of the Privy Council, I beg leave to observe that the Cholera made its re-appearance in this prison on the 3rd inst., with a degree of malignancy far surpassing the violence of the former attack ; and that during the period between its arrival until the present time, upwards of a hundred cases have occurred with different degrees of severity, out of which number twelve cases have terminated fatally : but I am happy to add, that the remainder are at this moment in different stages of convalescence, and that the disease appears to be gradually subsiding." And here we would ask, if Sir David Barry knew, as he must have known from this report, that Cholera had raged in the prison in its most malignant form from the 3rd to the 28th of June, what could his motive be for fixing on the three days in which the smallest mortality had lately prevailed ? It was thus the world were made to believe that the statements of Dr. Stevens and Colonel Chester-ton were untrue ; while the estimates of those gentlemen, as shown by the prison records, were *under* the mark, instead of *over* it !

But this is not all. The "nominal return" of Mr. Wakefield was completely at variance with the official statements of Sir David Barry ; and consequently, either the prison-books, signed by Mr. Wakefield, and attested by the visiting magistrates, recorded falsehoods, or Sir David Barry and his friends suppressed the truth. This can be further demonstrated in a few words.

Such had been the result of six days' appropriate treatment by Dr. Stevens, that Sir David Barry denied the existence of a single case of Cholera in the prison on the 27th of June.

Mr. Wakefield's "return" proved that twenty-nine cases of Cholera had been admitted into the infirmary-wards on the 26th and 27th ; and of these cases, FIVE were returned as cases of CONFIRMED Cholera, and this not in the "collapse column," but under the head of premonitory cases.

Laying aside, then, for argument's sake, twenty-four cases, we have, by Mr. Wakefield's own showing, at the lowest estimate, five decided cases of Cholera in the wards at a moment when Sir David Barry denied the existence of a single case. Of twenty-two patients admitted on the 25th, six ultimately died ; and we may deny, without fear of contradiction, that the history of Epidemic Cholera in public establishments has ever offered an example of so sudden a disappearance as pretended by Sir David Barry and his colleagues.

The "nominal return" of Mr. Wakefield did not exhibit a single case under the head of "Collapse." All the collapse cases were strangely transposed to the column which embraced a list of patients labouring under premonitory symptoms; yet the infirmary records which bear Mr. Wakefield's signature prove, not only that these five cases were collapse cases, but also that from the 3rd to the 28th of June, 1832, no less than fifty-eight cases of "collapsed," or "confirmed" Cholera were admitted into the wards of the prison.

Although we will not here enter more fully into "this strange, eventful history," we may mention that the statements of Dr. Stevens, relative to the condition of the prison, were voluntarily confirmed by Mr. Rotch, and others of the visiting magistrates; by Colonel Chesterton, the Governor of the prison; and by Mr. Ousby, the chaplain to that establishment. On the records of the prison, as well as on the independent and impartial testimony of men far above suspicion, we might rest our case.

But we must now return to, and briefly conclude our history of, the second attack of Cholera in Coldbath-fields Prison.

It has been shown, at page 157, that 337 patients, of whom thirty-five died, were attacked during this second outbreak; and that thirteen of the thirty-five deaths cannot be attributed to the saline treatment. Twenty-two, therefore, remain to be accounted for; but truth, and justice to Dr. Stevens, both demand that this number be still further reduced. It is a remarkable fact, as it appears from the prison records, that of 138 patients admitted from the 26th of June to the 27th of August inclusive, only five cases had terminated fatally. Consequently, comparing four weeks of Dr. Stevens' treatment with one week of the unsuccessful treatment of the Board of Health, we find that from the 1st of August to the 27th of the same month, under the saline treatment, not one death from Cholera occurred, although in that period thirty-eight cases of the disease were recorded; but that in one week, from the 28th of August to the 5th of September, no less than *nine* cases terminated fatally! How is this to be accounted for? We say again, and have the means of proving, that not one of these nine cases had been under the saline treatment.

This, then, being the state of the facts, we have during the second irruption 337 cases, and thirty-five deaths. We also find

that in the last fatal case, viz., that on the 20th of December, the saline treatment had been abandoned for an experimental trial of cold affusion; thus giving another case in reduction of the deaths under the saline treatment, or a sum total of deaths where the salines had not been used of twenty-three out of thirty-five. The following, then, will be the correct statistics of Dr. Stevens' treatment during both the first and the second irruption:

Cases of Cholera.

1st irruption, from April 5 to May 11 . . 165 . .	Of this number 159 were treated on Dr. Stevens' plan, with a result of 1 death and 158 recoveries.
2nd irruption, from June 3 to Dec. 27 . . 337 . .	Of this number (337), 287 of which had been treated by the saline remedies, there were 11 deaths and 280 recoveries.
—	—
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RESULTS OF TREATMENT.

In the 1st irruption . . 165 cases . . 9 deaths. Of these—

- 4 were not under the saline treatment.
 - 2 died of other diseases.
 - 2 died from relapse, being dismissed as convalescent too soon; and
 - 1 died under the saline treatment.
- 9

In the 2nd irruption . . 337 cases . . 35 deaths. Of these—

- 24 died in consequence of the abandonment of the saline treatment, first on the 13th of June; again on or about the 27th of August; again on the 20th of December; and
 - 11 died under the saline treatment.
- 35

We shall now, however, proceed to contrast more fully the results of Dr. Stevens' treatment in the second outbreak, as compared with other plans pursued when the salines were abandoned. We have before stated that Mr. Wakefield gave up administering Dr. Stevens' salines on the 14th of June. Now, the second outbreak commenced on the 3rd of that month, and what do we find to have been the result of Dr. Stevens' plan up to the time of its abandonment on the 14th? Just this—that from 3rd of June to the 13th, inclusive, there had been seven cases of Cholera, and a result of one death (the first case) and six recoveries. But from the 14th (the day after the discontinuance of the salines), to the morning of the 22nd of June—Mr. Wakefield, during the night of the 21st, having been induced to allow the resumption of the saline treatment—there had been twenty-six cases of Cholera, with a result of nine deaths, and seventeen recoveries. And now with this—the proper treatment—in force, what was the result? Why, that from early on the morning of the 22nd, when Dr. Stevens and Mr. Crooke took the management of the Cholera patients, to the 27th of August, no less than 189 cases of Cholera had been admitted, and out of this number the deaths only amounted to thirteen,—or thirteen deaths and 176 recoveries.

It is necessary, however, to remark, respecting these thirteen deaths, that nine of them at least could not be fairly attributed to the saline treatment; first, because seven died the same day they were brought into the infirmary of the prison, being at the time of admission in a dying condition; and the other two died, one *fourteen* and the other *seventeen* days after the Cholera attack. Hence, if we deduct these nine deaths from the thirteen, we have four left as resulting from the saline treatment in the above 189 cases.

Finally, from the 31st of August to the close of the year and the end of the outbreak, ninety-eight cases of Cholera occurred, and of these three proved fatal: but one of these three patients died after the salines had been abandoned for the foolish experiment of cold affusion.

This being a true statement of the case, with the greatest confidence we here ask, what practitioner, in respect to any zymotic diseases, can boast of success such as this?

To sum up this statement of the second outbreak, we have as the result :

	Cases.	Deaths.
Under the saline treatment	287	7
Under the old, or no-treatment	50	19
Patients who died 14 and 17 days after the attack of Cholera		2
Patients who died the same day as admitted for treat- ment		7
Total cases and deaths in the second outbreak	337	35

<i>Under the Saline Treatment.</i>			<i>Under the Old Treatment.</i>		
	Cases.	Deaths.		Cases.	Deaths.
From June 3 to June 13	5	1	From June 14 to June 21	26	9
From June 22 to Aug. 27	186	4	From Aug. 28 to Aug. 30	24	9
From Aug. 31 to Dec 27	96	2	Dec. 20 (cold affusion)		1
	—	—		50	19
	287	7	or, 19 deaths and 31 recoveries.		

or, 7 deaths and 280 recoveries.

Thus, then, in the two irruptions, we get a result of eight deaths under the saline treatment, and 438 recoveries, or a mortality of less than three per cent. in a total number of 446 cases of Cholera, 201 of which had been cases of collapse.

We may further mention, that in the year 1833 the Cholera again broke out in the prison, and that from July 29th to September 19th there had been in all twenty-four cases, and only two deaths. This result in 1833, of so few cases, was, we believe, partly attributable to the improved drainage.

From the above facts, we feel ourselves entitled to draw the following conclusions :

1st. The mortality from Asiatic Cholera, during the first outbreak at Coldbath-fields Prison was reduced, under Dr. Stevens' and Mr. Wakefield's care, to three per cent. of those attacked. Strictly speaking, we might affirm, to less than one per cent., one only having died out of 159 patients that were treated on his plan ; for two deaths are to be attributed to imprudent exposure after convalescence had set in.

2nd. The mortality, during the second outbreak, chiefly under Mr. Wakefield's and Dr. Stevens' care, under the saline treatment, was reduced to less than 3 per cent. of those attacked.

3rd. The statements of Sir David Barry and others, tending to demonstrate the non-existence of Cholera in the prison in the end of June, have been clearly and completely refuted by the authenticated documents which have been submitted to us. We, therefore, feel bound to declare, without hesitation, that the character of Dr. Stevens has been foully calumniated; and we call on those concerned either to confirm or to refute our assertion.

From the immense success which attended the use of the saline remedies at Coldbath-fields Prison, it might naturally be expected that Dr. Stevens' method would have been universally adopted in public and private practice. But the suspicion cast on the truth of his statements, widely circulated by a then-influential journal, and countenanced by the public authorities, prevented the majority of medical men from having recourse to the new treatment. Some few, however, less influenced by prejudice, did give the method a fair trial. With the results of the experience of some of these, we shall close the present chapter. For obvious reasons, single cases, or those comprehending a short series, have been omitted; though, if added together, they would form an imposing sum.

A practitioner in Warrington (Dr. Kendrick) furnished the *Medical Gazette** with a table of 108 cases, the result of which shows that seventy-eight patients were treated in various ways, and all died. Seven were treated by the salines and bleeding: all recovered. Twenty-three were treated with the salines alone; twenty-one recovered, two died. The cases, apparently, were of the most severe kind.

The report from the "Woolwich convict ship"† gives a tabular view of 148 cases treated by Mr. Bossey, with a result of 36 deaths, and 112 recoveries. Out of this number, however, 56 had been treated by bleeding and salines, with 45 recoveries: 65 had been put under the salines alone, and out of these there were 56 recoveries; so that out of the 112 who were saved, no less than 101 were attributable to the saline treatment, in a gross number of 148 cases, 17 of which were treated on the plan of the

* "Medical Gazette," vol. X., p. 731.

† Ibid., vol. X., p. 729.

Board of Health, and 10 had been hospital patients already suffering from various diseases. Can exaggeration and mis-statement be applied to the returns of Mr. Bossey?

We might here give a full detail of the saline treatment at the Greville-street Hospital. Suffice it to say, that after some difficulty with Dr. Marsden, who at first pronounced the saline treatment to be "all quackery," his consent was obtained to a trial of it being made in that establishment; and though even here some circumstances have since transpired which would have disgraced the parties who made their attack on the treatment pursued at Coldbath-fields Prison, yet the result was, that at the end of the epidemic of 1832, Dr. Marsden published a paper, in which he stated, that of 81 collapsed patients, treated by salines alone, only seven died.* Hence the mortality, even in *collapsed* cases, was reduced to 8·6 per cent. No amount of future prevarication can overthrow the value of this statement, which bears Dr. Marsden's signature. It is enough for us that Dr. Marsden says, in another paper, addressed to the *London Medical Journal*, speaking of the "second stage" of Cholera:—"The following plan must be rigidly observed, it being the only one yet known that has restored a single patient,—IT IS *the saline treatment suggested by Dr. Stevens.*"

Again, we might refer to Abchurch-lane; but to do so effectually we should be compelled to go into more detail than would be consistent with this sketch. Suffice it to say, that at Abchurch-lane Hospital, at Bridewell, at St. Luke's Hospital, and at St. Giles's, the saline treatment was employed; and so far as it was permitted to have *fair* play, the results were, generally, quite equal to those already stated. With respect to St. Luke's Hospital, we have the testimony both of Dr. Cambridge and of Mr. Rance; the former of whom says: "from my own personal observation and experience in the treatment of this direful disease, I am decidedly of opinion that the saline remedies are not only the most rational, but decidedly the most successful that have yet been tried;" and the latter testifies as follows:—"From what I have witnessed, it is but justice to Dr. Stevens to acknowledge, that I place more reliance upon the saline treatment than on any other that has yet been recommended."†

Again, in 1833, Dr. Andrew Ure, writing to Dr. Stevens (who

* "Medical Gazette," vol. XI., p. 17.

† Ibid, vol. XI., p. 83.

was then in Denmark), says : “ A few weeks ago, I met young Dr. Pinckard, Physician to St. Giles’s Hospital, who had originally slighted your saline practice in Cholera. He told me, further experience had eventually convinced him of its efficacy, and he had better cases to adduce in its favour than any which you yourself had been able to bring forward ;” and Dr. Ure adds : “ In case, therefore, of a return of this epidemic, you will be the sole practitioner, at least by proxy.”

The last testimony we shall quote is that of Mr. Moss, of Windsor, who says, in a letter to the *Medical Gazette*,* “ Such is my faith in the efficacy of this (the saline) treatment, that I would undertake to cure, *with the carbonates alone*, almost every case that occurred, if seen in the first stage of the disease ; but in the last stage I should certainly adhere strictly to Dr. Stevens’ plan. My belief is, these salts possess a specific influence in neutralizing or destroying the poison of Cholera, when diffused in the human system ; and I am far from solitary in deeming the discovery of this remedy as one of the most important and beneficial of the age, and its author, not only a real benefactor to mankind in general, but one of the greatest contributors to medical science.”

Many other testimonies of a similar kind might be collected at home and abroad—from foes as well as from friends ; but to record their results, or discuss their bearing, would carry us far beyond the limits assigned to the present work. Wherever the saline treatment has been fairly and fully tried—upon the principles and according to the plan of Dr. Stevens—we find evidence that the mortality of Cholera has been reduced below that of typhus fever. Such evidence we obtain not only from the discoverer and his more immediate friends, but from practitioners in various parts of the world—from men totally unacquainted with Dr. Stevens—from men above suspicion, and to whom no unworthy motives can be attributed. To their testimony we join our own—the result of a conscientious examination of the whole subject ; and unmixed will be our satisfaction if we shall find that our humble efforts have served to elicit the truth.

We have now, as we believe, given a succinct and true history of the saline treatment in 1832—33. It may be asked,

* “ *Medical Gazette*,” vol. X., p. 711.

What has this to do with an historical sketch of the Cholera for 1849? Our answer is—that it is most intimately connected with it. Those who refer to the many modes of treatment that have been proposed, with very slight evidence of their efficacy, will, we think, be led to study with deep interest the details now supplied, as to a particular plan of treatment adopted in 1832, under which we show, that, out of at least 1,000 cases, the mortality was about 5 per cent. Why, then, with this result, was the last outbreak so fearfully destructive to human life? Had the properties of the neutral salts changed? Was the Cholera of 1832 a different disease from that of 1849? or, if it were the same disease, were the constitutions of prisoners more susceptible of a particular remedy than those untainted with crime? Did the atmosphere of a prison favour the exhibition of the remedy—while that of the private dwelling effectually impeded it? Assuredly not. The answer will be found in the simple fact, that a man of unimpeachable honour and integrity,—one who had already done much for medical science,—having discovered and successfully employed a remedy for this disease, was assailed and vilified in the most unjust manner; and a practice calculated to mitigate the sufferings of mankind, and to check the progress of mortality, repudiated and condemned, for purposes to which true science and the public good were total strangers.

The success which has attended the saline treatment is no longer a matter of speculation;—“*demonstratum est quod erat demonstrandum.*” The facts speak for themselves; and accordingly, however ill-treated and calumniated Dr. Stevens may have been, he can now afford to look back with satisfaction upon his past career; and, remembering that the advocates of truth have too often to contend with the machinations of self-interest, prejudice, and ignorance, he may reasonably congratulate himself upon the triumph that time has achieved. The result, too, bears its own moral:—the young aspirant to professional honours may hereby be forewarned of the jealousies and hostilities against which he may have to contend; and he may moreover discover beacons, which would warn him from the shoals and sunken rocks upon which his fair fame may otherwise be wrecked.

To the government of this country—to those in whose hands is placed the safeguard of their fellow-men, we would make a last

and confident appeal. The question here debated is one of no minor import. It affects the lives of thousands, and the happiness of the whole community. The plague, which has passed away, may return to-morrow; and with it again will come desolation and death. The means of treatment hitherto employed have, with one great exception, confessedly proved inefficient. Must we, then, abandon the field in despair; and can it be said with truth that medical science has left us without one ray of hope? The facts recorded in the preceding pages demonstrate the contrary. A successful mode of combating Asiatic Cholera has been discovered. However much envy and malice may have obscured the truth, still the science of medicine has not proved false to her followers. A fact of the most vital importance has by misrepresentation been confounded with falsehood, and many thousand lives, in consequence, been blindly sacrificed; and to test the value of this assertion—to disengage truth from the chaos of calumnies into which it has been plunged—to arrest the hand of death, and disseminate life-giving knowledge, are acts worthy of an enlightened and beneficent government.

After the statements which have here been made, it becomes a duty, from which no government can honourably shrink, to make the necessary investigation. In matters affecting human life, there is no statute of limitation; and now—at the eleventh hour—we earnestly, and confidently call on Her Majesty's Government to inquire, ere too late, into a matter from the neglect of which incalculable injury must inevitably ensue.

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ERRATA.

Page 16.—13th line from bottom, for "vilis" read "bilis."

Page 108.—3rd line from bottom, after 1625, insert 1636.

Page 123.—14th line, for "Mr. Ranger" read "Mr. Grainger."

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